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# LAKE CARRIERS' ASSOCIATION.

To consider and take action upon all general questions relating to the navigation and carrying business of the Great Lakes, maintain necessary shipping offices and in general to protect the common interest of Lake Carriers, and improve the character of the service rendered to the public.

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## THE LAKE ERIE—OHIO RIVER CANAL.

The secretary of war has appointed a board of officers of the corps of engineers consisting of Col. Orlando M. Poe, Detroit; Lieut-Col. Amos Stickney, Cincinnatti; and Capt. W. L. Marshall, of Chicago, under the provisions of the river and harbor act of August 17, 1894, to make certain surveys and a report relative to a continuous canal connecting the waters of Lake Erie with the Ohio river, through the State of Ohio. The board will assemble in Detroit at the call of the senior member. The clause in the act referred to governing the board reads: "The secretary of war is hereby authorized and directed to appoint a board of three engineers of the army whose duty it shall be to survey the Miami and Erie canals, the Ohio canal, and such branches thereof, and such river and stream channels as may in their judgment form available portions of a continuous canal connecting the waters of Lake Erie with the Ohio river through the State of Ohio, and to report as to the feasibility and advisability of improving and widening such canal to 70 feet, at the water line, and deepening the same to 7 feet and by construction of new locks not less than 150 feet in length and 21 feet in width, with a capacity for vessels of at least 280 tons burden, and to report to the next session of Congress with detailed plans and an estimate of the cost of such improvement; and $20,000 or as much thereof as may be necessary for the cost of said survey is hereby appropriated."

## OXYGEN ON SUBMARINE BOATS.

Oxygen is likely to play an important part in the submarine boat soon to be built for the navy. It has been found that a comparatively small quantity of oxygen from time to time admitted to a submarine chamber will keep the air of such a chamber for hours in the condition to sustain human life. Instead, then, of carrying large volumes of compressed air in many heavy metallic receivers, a single receiver filled with oxygen may be carried. This makes possible an important economy of weight and space.

## NATURALIZING SEAMEN.

Capt. Frederick Watkins, who has been made a citizen of the United States by a special Act which gives seafarers the right to naturalization two years after declaring their intentions, has resumed command of the Paris. Under the provisions of this law, however, Capt. Watkins will not be allowed to vote for three years to come.

Capt. W. G. Randle, the late commander of the Paris, has been sent to Cramp's yard at Philadelphia to superintend the construction of the two new steamers, the St. Louis and St. Paul. Capt. Lewis, who formerly commanded the New York, and who had to give that vessel up because of his being a British subject, is now in command of the Southwark, trading between Antwerp and Philadelphia, but will take command of the Berlin on her next trip, and so on to a probable command of the New York or Paris again.

## FISH CULTURE.

A United States fish commissioner and a member of the Canadian department of marine and fisheries are on a tour of the lakes on goverment business relating to the fishing industry of these waters. They were selected to make a joint inquiry into the fisheries of the waters contiguous to both countries, and are now completing their work in the Great Lakes, having already covered Lakes Superior and Michigan and parts of Huron. They have been steadily at work since March, 1893, making their first investigations along the Atlantic cost. When their work is completed they will prepare a report and submit it to both countries.

There are now in operation along the Great Lakes hatching stations at Northville, Alpena, Duluth and Put-in-Bay, and arrangements are being made for a new station at Cape Vincent, N. Y. Of these, the Northville fishery is the oldest and the one at Put-in-Bay the largest. Alpena is second in point of age and size. Last fall the latter station collected 30,000,000 whitefish eggs, and 3,500,000 trout eggs. Eight-six per cent. of the whitefish eggs and 80 per cent. of trout eggs hatched and were turned out in the spring. This year it is expected to almost double last year's work.

## NEW TORPEDO BOATS.

The bureau chiefs of the navy department are making good progress in the work of preparing the plans for the three new torpedo boats, authority for the construction of which is contained in the naval appropriation bill for the present fiscal year. The general design of the vessels has been determined upon and the specifications will be prepared within the next two weeks. The vessels will have a general resemblance to the Ericsson, which is to be tried in Long Island sound in a few weeks. They will have about ten tons more displacement, however, or about 130 tons in all.

The first intention was to make the boats considerably larger, so that they might rival in speed the English flyer Hornet and her class, but the small appropriation available made the adoption of less ambitious plans necessary. Steel will be employed in the construction of the hulls. There will be no armor, except on the conning towers, which will have plates of about five inches in thickness as a protection against light rapid-firing guns and small arms. Twin screws, propelled by two separate engines, will drive the new boats, and as their boiler power will be slightly greater than that of the Ericsson, a speed of twenty-five knots an hour is counted on.

It is expected that the department will be prepared to invite proposals for the construction of these vessels by the middle of September, and the prediction is made that they will be completed and ready for active sea service by November, 1895.

## THE DERELICT FANNIE E. WOLSTON.

A report received from Capt. Pothier, Br. Sch. "Urbain B.," by the Hydrographic Department, U. S. Navy, Washington, D. C., states that on a voyage from the West Indies to Nova Scotia he fell in with the derelict schooner "Fannie E. Wolston," July 20, 1894, latitude 30° 16′ N., longitude 66° 26′ W. On boarding the derelict the hull was found in good condition; the masts, houses, hatches and bulwarks were gone; the anchors were still on the bows, and the name on the bow and stern still visible.

On August 6 she was again sighted by Capt. Tompsett, Br. S. S. "Merida" in latitude 34° 05′ N., longitude 67° 20′ W. The current at the time was setting northeast. Since this derelict was abandoned, October 15, 1891, she has been reported forty-four times. She has been a derelict 1,025 days, during which she has drifted 8,575 miles, and as she is supposed to be afloat yet, her track will probably be still further extended.

## THAT PEWABIC TREASURE.

There seems to be some unaccountable desire to reach the cargo of the steamer Pewabic sunk through collision in Lake Huron a quarter of a century ago. The last attempt to reach the Pewabic ended fatally to the diver, Oliver Pelky of Superior, Wis., since which time a Pennsylvanian has been figuring on reaching the craft. It has taken longer to arrange the details of the expedition than was expected, but the venture is now said to be assured. The enterprising diver who is about to descend in over twenty fathoms of water to locate the wreck is named George W. Brooke and his home is at Harrisburg, Pa. He has secured the necessary capital to furnish the outfit for the enterprise and he expects to start soon for Thunder Bay, prepared to take long chances for a big stake.

This new aspirant for acquiring treasure trove says he has a patent diving suit which will enable him to work in water of much greater depth than any other armor now in use. He is a marine engineer by profession and is apparently an intelligent and intrepid man.

# NEWS AROUND THE LAKES.

## CLEVELAND. O.

*Special Correspondence to The Marine Record.*

Capt. John Mitchell visited Buffalo, and H. A. Hawgood, Detroit this week.

The tug Castle is being repaired after her collision with the Pasadena, the damage to her hull is but slight.

John C. Fitzpatrick of the vessel brokerage firm of Galvin, Clark & Co., Buffalo, visited this port during the week.

Capt. Thos. Wilson and H. D. Goulder Esq., are expected back from their Lake Superior tour towards the end of this week.

Next Sunday will be the last excursion to Beach Park and Lorain for the season. The State of Ohio, of the C. & B. line, will afterwards be kept on her regular route.

Lieut. Geo. P. Blow has been detailed to attend the Toronto Deep Waterway Convention, representing the Hydrographic Department U. S. Navy in the interests of the lakes.

The steamer Flora of Grummond's Mackinac Line will be taken off the route this week and the State of Michigan will handle all of the traffic for the remainder of the season.

The Lora has finished her season on the Thousand Island route, and has been chartered by the Cleveland & Buffalo Line to handle freight and a limited number of passengers.

The Cleveland Tug Co., Geo Elsey Jr., manager, finds business improving and states that August developed one third more work than any previous month during the season.

The Arctic cruise on which Commodore Gardner, ex-mayor of this city, started out on a couple of months ago has been brought to an end through the foundering of the steamer in a high northern latitude. No lives were lost, though the scientists got a dose of hardships which they will never forget.

The schooner Emma C. Hutchinson, Capt. L. G. Vosburg, and the passenger steamer City of the Straits collided at the mouth of the river on Wednesday night, the latter having her upper works so damaged that she will proceed to Detroit for repairs, and thus bring to an end the Put-in-Bay excursions for the season. The schooner received but little damage.

The North West passed down on Tuesday without calling at this port, nor did she call here on her return trip, the local traffic being otherwise taken care of. Loss of time through the dense smoke on the lakes and a desire to make arrivals and departures on schedule time at the terminal ports is given as the cause for skipping her calls here.

Mr. Luther Allen. president of the Cleveland Chamber of Commerce and secretary and treasurer of the Globe Iron Works Co., is now on a visit to the Pacific Coast. Word comes along that Mr. Allen is upholding the Buckeye State, and more distinctively so the "Forest City," in a manner worthy of emulation. There is generally too little of Cleveland about Cleveland people when they are traveling.

J. H. Bowles, of New York, is making a trip around the lakes securing photographs of lake captains, with a view to preparing a large collection in a single frame. He has such a collection of masters of ocean steamers, about two hundred in number. He has presented General Manager W. A. Collier, of the Vessel Owners' Towing Company, with a handsomely framed copy of the coast edition.

The handsome steel steamer S. S. Curry, of the Hawgood & Avery line, has capped the climax of freight carrying on the lakes, of loading a cargo this week at Conneaut, O., for Gladstone, Mich., of 4,535 tons of coal and 280 tons of fuel on a mean draft of 16 feet 9½ inches. This is nearer the 5,000 ton record than any cargo yet transported on the lakes, and only a few inches better draft of water at Grosse Pointe would have allowed the big carrier to round up a neat 5,000 tons of cargo.

There were several entries in the regular fall regatta of the Cleveland Yacht Club on Monday, and the enthusiasm brought out would have made the contest a successful one if there had been any contest, but the wind frittered out and Messers Sly, Kolbe and Williams who acted as judges awarded a prize to the Whim on a drifting match where she just saved her time limit by four seconds. Other races were declared off as they could not be sailed in the allotted time.

Receipts of iron ore at Cleveland from all ports during the month of August were 217,175 gross tons, divided as follows: From Duluth, 16,363; Ashland, 43,112; Marquette, 77,836; Two Harbors, 41,990; Escanaba, 37,874. Shipments of coal from Cleveland in August, as given by the United States customs statistics, were 149,511 net tons, exclusive of fuel furnished. Of this 65,265 tons went to Lake Superior, 50,016 tons to Lake Michigan and Green Bay, and 34,230 to other ports, chiefly to the rivers.

The Chamber of Commerce will take up the harbor question this winter and see what may be done towards facilitating commerce besides putting the harbor in a healthy and presentable shape. This is a most important feature and the committee in charge of the harbor improvements might well take a leaf out of the Duluth book on the subject, The general government can not carry on work inside of the harbor lines, so that whatever changes are needed must be made by the municipality.

It is all right to learn of large contracts for new tonnage but the furnisher of specials to the dailies should let up a trifle on the Wheeler and Davidson yards as these reports are becoming chestnuts. Capt. James Davidson, of Bay City, visited this port on Tuesday and he stated that he knew nothing of the two wooden steamers which a dispatch sent out from that town a few days ago said were soon to be started at his yard. A fact which makes the report look a little like wire pulling in some direction for some purpose.

Unless coal shippers make up their minds to pay fifty cents to the head of Lake Superior it is likely that the railroads will be after them for demurrage charges for detaining cars at shipping points. Toledo is chock full of coal awaiting shipment, and because the Cleveland owners have had backbone enough to refuse to carry it for nothing the shippers are foolishly attempting to hold it back. There is no sense in carrying coal or any other commodity unless a vessel can earn something by so doing, and as freight on ore is so low the upward cargo must stand a share of the cost of transportation. Carrying coal up at an actual loss to the vessel is probably one reason for the bottom dropping out of ore freights, as the rule is expected to work both ways.

The light-house tender Haze arrived here on Friday last, having aboard Commander C. V. Gridley, who a few weeks ago succeeded Commander Green as inspector of the tenth light-house district, with headquarters at Buffalo. Commander Green is placed on waiting orders. It will be remembered that Commander Gridley was formerly detailed as inspector of this district, since which time, however, he has been in command of the Marion, and was in charge when she was thrown on her beam ends in a typhoon off Yokohama a month or two ago and had to go into dry dock for extensive repairs. Capt. John J. Reed, who succeeded Commander Heyerman as inspector of the eleventh district, has been detailed to the Pacific coast, where he will take command of the receiving ship Independence, stationed at the Mare Island navy yard.

The branch hydrographic office, U. S. Navy, located on the top floor of the Arcade building, in charge of Lieut. Geo. P. Blow, U. S. N., is now getting into shape and will be ready to carry on the work laid out for it in a few days. Among the scientific instruments already received is a handsome binnacle stand containing a compensating compass such as is used in the U. S. Navy and resembling the Sir Wm. Thompson patent. There is also a deep sea sounding machine for use while a vessel is underweigh; a pelorus and other valuable instruments, the use of which the Lieutenant courteously and thoroughly explains to those in whose interest the office has been established. There are already a large number of shipmasters on the list as observers for the work carried on and planned by the hydrographic office, and others will begin to appreciate the information furnished just as soon as the department gets fairly established in its lake work. The Pilot Chart issued for the lakes is receiving especial commendation all round.

## CHICAGO, ILL.

*Special Correspondence to The Marine Record.*

Capt. James B. Calbick and wife and family have gone East on a pleasure trip.

Capt. John Prindiville chartered the schooner E. B. Maxwell for oats to Port Huron at 1 cent.

The schooner James G. Blaine, ashore on Fox Island, has not been released. The weather has not been favorable for the wrecking tug Swain to work on her.

Capt. John Prindiville and Wm. A. Paulsen sold the side-wheel passenger steamer, Chief Justice Waite to M. P. Jackson and others, Chicago; consideration $16,000.

The grain trimmers' union has advanced the union rate for trimming cargoes to $1 per 1,000 bushels. Hitherto this season the rate has ranged all the way from 60 cents to $1.

At Miller Bro.'s shipyard the tug Alpha was in dock for a new wheel, the steamer F. W. Prince for some new bilge plank and recalking bottom, the schooner W. O. Goodman received a new foremast, the schooner Charlie Marshall a new anchor stock.

The steamer Egyptian, Capt. Thomas Beggs, with grain from Milwaukee for Oswego, which went ashore on the south point of South Manitou Island, on the morning of August 31st, released herself or was released by a wrecking tug and is on her way to her port of destination.

P. H. Fleming & Co. chartered the steamer Majestic for oats to Buffalo at 1⅛ cents, steamer J. B. Ketchum 2d for oats to Port Huron at 1 cent, barge Montgomery for oats to Port Huron at 1⅛ cents.

Carr & Blair chartered the steamer Uganda for Buffalo for corn at 1¼ cents, oats at 1⅛ cents; steamer Progress for wheat to Buffalo at 1⅜ cents; steamer Lindsay for wheat to Buffalo at 1½ cents.

Continued complaints are made against the Chicago fog signal. The latest complaint is from Capt. Frank Williams, of the steamer Harlem, who says that although the fog was very thick at noon on Wednesday, when he entered the harbor, the signal was not blowing and he lost much time and ran no little danger while looking for the mouth of the river.

Capt. J. S. Dunham has been named by the Chicago board of trade as delegate to the deep waterways canal convention which meets in Toronto, September 17.

The Viking, after crossing the ocean, floating around lake ports, cruising to New Orleans and back, was allowed to sink this week in the almost putrid waters of the Illinois Central slip. She is, of course, to be raised again.

Palmer, Cook & Calbick chartered the steamer Isabella J. Boyce and consorts, Jessie Boyce and George J. Boyce, for oats to Port Huron at 1 cent; steamer New Orleans for corn to Buffalo at 1¼ cents; steamer W. P. Ketchum for wheat to Erie at 1½ cents, her consort, Geo. B. Owen, wheat to Erie at 1⅜ cents; the schooner Kate Kelly for oats to Port Huron at 1 cent.

J. G. Keith & Co. chartered the steamer City of Paris for corn to Buffalo at 1¼ cents; steamer Iron King and consort Iron Queen for oats to Buffalo at 1⅛ cents; steamer Iron Duke for wheat to Buffalo at 1½ cents, and consort Iron State for oats to Buffalo at 1¼ cents; steamer M. A. McGregor clipped oats to Port Huron at 1 cent; steamer E. A. Shores, Jr. wheat to Milwaukee, private.

Marine men at this port are very glad to know that an appropriation has been made by Uncle Sam for a full crew to be appointed for the life saving station at Chicago harbor. They however hope that the authorities at Washington will not waste more time than absolutely necessary in selecting a good competent captain and crew; as their services will be required during the equinoctial gales this month and until the close of navigation.

The new steamer, Nicaragua, Capt. Geo. W. Pierce, arrived here on her maiden trip Monday at 3 a. m. from Duluth with 1,288,000 feet of lumber. The Nicaragua was built by her owner, Capt. James Davidson, Bay City. Her dimensions are 257 feet over all, 37 feet beam, 3 feet 6 inches molded depth; engine, triple expansion, 16 and 25 and 42 cylinders by 34 stroke; boiler, Scotch type, 13 feet 6 inches by 13 feet 6 inches, built by the Frontier Iron Works, Detroit. She also has the Howden forced draught, Globe steam steerer, and the American Ship Windlass Co.'s latest improved steam windlass and capstans.

Capt. R. C. Brittain was here Saturday from Saugatuck, getting the outfit at Geo. B. Carpenter & Co.'s for the steam yacht Berwick, recently built by him at Saugatuck, Mich. The Berwick's dimensions are 57½ feet over all, 14 feet beam, 4 feet depth of hold, engine high pressure, 8x10, by H. Bloecker, Grand Haven, boiler Scotch type, 4x8, built by Johnston Bros., Ferrysburg, Mich. Capt. Brittain built the Berwick for the use of himself and Capt. Robert Reid on the Athachafala river, at Berwick, La., where they intend to build a shingle mill next winter. Capt. Wm. Wycomb will take the steamyacht to Berwick this month.

The steamer Robert Holland and consorts, Fanny Neil, L. M. Stephenson and William Grandy went ashore Saturday night on Big Bear Point in the smoke. They were light bound from Chicago to Washburn. The Holland, Neil and Stephenson are owned by Bigelow Bros., of this port. Advices from Glen Haven, Mich., received here Monday, state that the Holland, Neil and Stephenson had been released and taken to South Manitou Island. The Holland's stern was badly damaged and she would be taken to Manitowoc for repairs at Burger & Burger's shipyard. The Grandy, which was only about twelve feet from the shore, had not been released.

## DETROIT, MICH.

*Special Correspondence to The Marine Record.*

A squall blew down the lower rear range light at the head of Grosse Isle on Tuesday night. The tower was a skeleton structure, composed of four iron uprights ninety-four feet high, braced and girded. The Light House Board has given instructions to have the light replaced at once.

The steamer Lora's St. Lawrence river season terminated with the trip of last week. The Cleveland &

Buffalo line have chartered her by the trip, as they have now more freight business than their two steamers can handle. The Lora has had her decks calked and some other repairs made at the Detroit dry dock and left for Cleveland.

A light-ship recently built at Toledo and engined by the Frontier Iron Works, of this port, is now stationed near Nantucket Island. This location is one of the stormiest on the coast, yet the light-house inspector at Boston states that the lake built craft is the peer of anything in the service in construction and equipment and well able to stand the hard weather which she is destined to encounter at her exposed station.

The passenger steamer Frank E. Kirby is one of the most successful and speedy boats in the passenger trade out of this port, or for that matter on the whole chain of lakes. On Saturday last when the City of Cleveland grounded on North Bass Island with a crowd of excursionists the Kirby lightened her and materially assisted in her release by taking on board a large number of her passengers and landing them safely at this port.

The Michigan Wrecking & Salvage Co. have secured the engines and boilers of the steamer Wocoken, which foundered in Lake Erie October 14, 1893. On examination of the hull it was found so badly strained and damaged as not to be worth raising, and about all the salvage that can be got out of the sunken boat is the machinery, which was landed here a few days ago. The boilers will be inspected and probably put in first class shape again by the Detroit Dry Dock Co. The engines will also be refitted.

Relative to the strictures passed by E. A. Cooley, of Bay City, in the daily papers on passing signals, Supervising Inspector Westcott states that any complaints made to the inspectors, if forming sufficient grounds on which to act, will receive prompt attention. Capt. Westcott points out the fact that Mr. Cooley does not give the name of the boat on which he was a passenger nor the names of any boats refusing to answer passing signals. Although admitting that passing signals are perhaps neglected, yet there are no present means of ascertaining such to be the case.

That the North West left Port Huron first on Tuesday morning and the sidewheeler City of Mackinaw arrived here first are the grounds on which a hotly contested race is supposed to have been entered into between the twin screw propeller and the sidewheel boat. The rivers is not the place for a trial of speed where the North West is concerned so that the better time made by the Mackinaw proves but little as regards a speed test. A brush between these boats was had on Lake Huron a few weeks ago and the North West made no attempt to shake off the sidewheeler in over an hour's run. It is a question if the Mackinaw cannot get over the ground quicker than the North West in shoal water and the Lake Huron dash would show that the sidewheeler can hold her own even in deep water, but there is nothing in this river spurt so much spoken of.

## BUFFALO, N. Y.

*Special Correspondence to The Marine Record.*

The lake line managers have succeeded in agreeing upon a division of east-bound traffic so that each line will get a percentage of freight. The effect of this agreement will be to restore the tariff of last spring.

The propeller H. E. Runnells, with a cargo valued at $250,000 of copper for Black Rock, went ashore at Point Abino, nine miles up the Canadian shore on Monday night. She was pulled off by Buffalo and Canadian tugs next day not much damaged.

The race between the North West and the City of Mackinaw is ridiculed here, as the big white boat only uses two-thirds steam until she gets into deep water. It is generally conceded that there is nothing on the lakes that has any business with the North West this season, and that there will be less cause for feeling any way envious of her speed next year, when her machinery will have been got down to perfect working order.

Major John M. Farquhar is spoken of as a most excellent candidate for Congressional honors in the next election. Regarding his attention to the marine interests there can be no two opinions as he worked early and late in his endeavors to see liberal measures adopted in the river and harbor appropriations as well as all other matters affecting lake commerce and navigation when he was a member of a former Congress. Vessel owners and masters are aware of Major Farquhar's efforts in the past and if he becomes a candidate a re-election is more than probable.

## A GEORGIAN BAY CASUALTY.

COLLINGWOOD, ONT.—While trying to find the narrow entrance at Point Aux Baril, on the east shore of Georgian Bay, on Sunday night, the steamer Favorite of the North Shore Navigation Co., ran on the Black Bill rocks. The smoke was dense and the night very dark, and to make matters worse a terrific thunder storm came on about midnight accompanied by hard squalls.

The passengers and crew, 30 in number, deserted the stranded vessel in their boats at daylight. Two of them reached Point Aux Baril, but fears are entertained for the safety of the third boat, containing the engineer, purser, steward and lumber traveler named Thompson and seven of the crew, as she has not yet been heard from.

## A NEW DULUTH TUG.

W. A. Singer, of Duluth, has closed a contract with Heath, of St. Joseph, Mich., to build a tug 95 feet long, 20 feet beam, with steam-steering gear and all the latest improvements. The boat is to cost $18,500.

## OBITUARY.

JOHN W. KEITH.

Capt. John W. Keith, who died in Detroit last Sunday although not connected directly with marine affairs during the past decade, was still one of the pioneers in lake navigation and was well known to all engaged in sailing half a century ago. Capt. Keith was born in Detroit in 1819 and very early in life commenced sailing for a livelihood. From cabin boy he steadily worked his way along until he was given charge and so well did he acquit himself of his arduous duties that he was soon enabled to stay ashore in his native city and enter the vessel business, later taking in Mr. David Carter, the present manager of the D & C. S. N. Co., as a partner. The firm was dissolved in 1884 and Capt. Keith then engaged in the coal business with his brother A. T. Keith. After a few years Capt. Keith accepted a position in the municipal offices at Detroit and fulfilled his duties until about two years ago, since which time he has not been actively engaged at any pursuit. Two brothers survive him, August Keith, a retired vessel owner, who resides at Grosse Ile, and William Keith, controller of Bay City. He leaves a widow and three children, the latter being J. W. Keith, of Bay City; Frank A. Keith, of Leadville, Col., and Mrs. Wm. Hanna, of Detroit.

## AMPLITUDES.

The following approximate amplitudes of the Sun's rising will be given each week in this column during the season of navigation: A second bearing of the Sun may be taken at sunset by reversing the bearings to read west instead of east, as, for example, E. by N. ½ N. for a sunrise bearing would read W. by N. ½ N. for a sunset, or E. 10° N. to W. 10° N.

LAKE ERIE AND S. END LAKE MICHIGAN LAT. 42° N.

| Sunrise. | Bearing (degrees.) | Bearing (points.) |
|---|---|---|
| Sept. 7 | E. 8° N. | E. ¾ N. |
| Sept. 12 | E. 5° N. | E. ½ N. |

LAKE ONTARIO, S. END HURON AND CENTER LAKE MICHIGAN LAT. 44° N.

| Sunrise. | Bearing (degrees.) | Bearing (points.) |
|---|---|---|
| Sept. 7 | E. 8° N. | E. ¾ N. |
| Sept. 12 | E. 6° N. | E. ½ N. |

N. END LAKES HURON AND MICHIGAN, LAT. 46° N.

| Sunrise. | Bearing (degrees.) | Bearing (points.) |
|---|---|---|
| Sept. 7 | E. 9° N. | E. ¾ N. |
| Sept. 12 | E. 6° N. | E. ½ N. |

LAKE SUPERIOR LAT. 48° N.

| Sunrise. | Bearing (degrees.) | Bearing (points.) |
|---|---|---|
| Sept. 7 | E 9° N. | E. ¾ N. |
| Sept. 12 | E. 6° N. | E. ½ N. |

With a compass correct magnetic, the difference between the observed and true bearings will be the variation for the locality. If there is any deviation on the course the vessel is heading at the time of taking the bearing the result after the variation is applied will be the amount of deviation on that course.

## THE DESTRUCTION OF DERELICTS.

In the monthly Atlantic Pilot Chart just issued by the Hydrographic Department, U. S. Navy, it is stated that during the past seven years, 1887 to 1893, the Hydrographic Office received 5,024 reports concerning a total number of 1,628 derelicts, of which number 482 were identified and 1,146 unidentified. The average number of derelicts constantly afloat is estimated to be 232 annually, or about 19 per month. Statitics compiled from the reports received show that the average period a derelict is afloat after having been abandoned is about 30 days. The dangerous character of these derelicts is illustrated by the fact that in this period of seven years there have been 45 collisions with them which caused the total loss of nine vessels and considerably damaged seventeen others. Seventy derelicts have been destroyed, one by torpedoes and the ram of the U. S. S. San Francisco, and sixty-nine by fire. Seven other attempts to destroy derslicts by fire are considered to have been unsuccessful as the derelicts remained afloat for some time after having been set on fire. Five of these seven had cargoes of lumber that had become so waterlogged as not to be inflammable; the other two were in ballast. The efficacy of destroying derelicts by fire is thus illustrated. In the cases of the sixty-nine attempts regarded as successful, the fact that these derelicts were never seen subsequent to the time they were set on fire is regarded as sufficient proof of their destruction.

## ITEMS FROM THE LOG BOOK.

The Anchor Line placed the steamer Alaska in commission on Monday, and she cleared for Chicago on her first trip of the season.

The Secretary of the Treasury has appointed Henry W. Gray master of lightship No. 62, at Poe's Reef, vice Frank Herrick, removed.

George H. & J. Byrne, contractors, of Toledo, O., have purchased the tug Marinette, at Menominee, the price paid being $6,000.

The owners of the steamer John Rugee, of Ogdensburg have kept her tied up all season, not being able to see their way clear to pay bills at going rates of freight. With the advent of better rates the steamer will now start out to earn a little money during the balance of the season.

The tug Genevieve with dredge and scows left Conneaut, O., on Tuesday for Port Dover, Ont., to commence work on that harbor for the Conneaut & Port Dover car ferry line, so that it now begins to look as if President Dick, of the Shenango railroad was going to make a success of the new enterprise.

The search for the wreck of the Dean Richmond, which foundered off Dunkirk last October, has been given up. During the last two weeks the tugs have dragged over 36 square miles of the lake bottom, which was staked off as being the probable place of the wreck. Nothing was found to indicate where the steamer foundered.

The owners of the tug Cheney, which was sunk near the Sault by collision with the Fayette Brown, have abandoned her to the underwriters. The Brown was insured against collision liability. The machinery has been taken out of the Cheney and the hull is being pulled to pieces. She was owned by Hursley Bros., of Sault Ste Marie.

The schooner Restless, which had been overdue for seventeen days, and which was given up as lost by her owner at Manitowoc, Wis., has turned up all right. For nearly three weeks the Restless lay at the Beaver islands waiting for the smoke to clear off the lake, so that they could proceed with safety. The crew were all well and were greatly surprised to learn that their families and friends had given them up for lost.

The license of Capt. Richard Armstrong, of the excursion steamer Post Boy, Chicago, has been suspended for 30 days by the steamboat inspectors for "willfully and maliciously running into the line of the steamer Ivanhoe at Windsor Park, by which considerable damage was done to the latter boat." The little steamer Abyssinia was caught by the line and was badly knocked to pieces. Capt. Armstrong admitted his fault before the inspectors. The ruling will bar the captain out of taking charge again during the month of September.

The burning of the great stocks of lumber on the docks at Ashland, Wis., this week will be a serious blow to the lake lumber trade. Of the 15,000,000 feet of lumber consumed at Washburn and Ashland, 7,000,000 feet had been sold and was ready for shipment by lake. It will be impossible to replace this lumber before the close of the season. Five vessels loading at Ashland at the time the fire swept the docks had a narrow escape from burning but they got out to an anchorage just in time to escape the flames.

At the inspection of the new passenger steamer Unique, which is intended to run between Detroit and Port Huron, the enormous pressure of 360 pounds per square inch was put on the boilers with a hydraulic pump, which will allow a working steam pressure of 240 pounds. The boilers are of the Ward water tube pattern and are expected to make steam very rapidly. This craft is already known as the McElroy flyer. Although no speed tests have yet been made, still she has been given the power to prove herself a very speedy boat, and a preliminary spin shows her capable of eighteen miles per hour.

It is now feared that Capt. Adolph Freitsche and his little craft Nina has turned turtle in his passage across the Atlantic. The steamship Scandia, which reached New York on Friday, reports that on the previous Tuesday she sighted a wreck estimated at thirty feet long, but it was too dark to make her out distinctly. This derelict was encountered about fifty miles southeast of Sable Island. From the small size of the wrecked vessel and her position it is not impossible that it may have been the little schooner Nina, though it is to be hoped and it is quite probable that it was a life boat washed out of some vessel's davits and that the hardy Swede is still pursuing his solitary way across "the pond." It is since learned that the Nina has been spoken all well, the Captain sending letters home.

## MARITIME LAW.

LEWIS et al. v. TRANT.—WILEY et al. v. SAME.

*Circuit Court of Appeals, First Circuit.* April 18, 1894.

1. COLLISION—CONFLICTING EVIDENCE. Testimony as to precautions taken by a steamer to avoid collision with a schooner, given by intelligent witnesses on board the steamer, who co-operated in the precautionary manoeuvers, is not overcome by that of witnesses looking on from remote points, or aboard the schooner, who failed to observe such precautions.

2. SAME—SCHOONER UNNECESSARILY TACKING ACROSS STEAMER'S BOW. A steamship is not liable for collision with a schooner unnecessarily tacking across the steamer's bow, in a narrow channel, and in such close proximity that the steamer cannot avoid her.

Appeal from the District Court of the United States for the District of Massachusetts.

These were two libels against the steamship Philadelphian (William H. Trant, claimant) for damages from a collision between said steamship and the schooner Lizzie Williams—one by A. S. Lewis and others, members of the crew of said schooner, and Joseph Welch, also on board the schooner at the time of the collision, for loss of personal effects and other damages; the other by Otis H. Wiley and others, owners of said schooner, for loss of the vessel and other damages. The cases were consolidated by order of the district court, and, on hearing, the libels were dismissed. Libelants jointly appealed. A motion by appellants for leave to take furtner proofs was granted (60 Fed. 423), and additional depositions were taken.

The collision occurred in Boston harbor at twenty minutes past 11 o'clock in the morning of the 27th of April, 1892, a short distance above the upper middle buoy. The steamer was a vessel 455 feet long, 45 feet beam, 3,322 tons, 10,600 tons displacement, and her draught at the time was 26 feet 6 inches. The schooner was about 75 feet long, of 57 tons, and her draught at the time was about 10 feet. At, and for some distance on either side of, the place of collision, the channel for the steamer was from 1,000 to 1,200 feet wide, while for the schooner it was about 3,000 feet wide. Both vessels were on their way down the harbor, to sea. The wind was about east, and the tide about slack, at full high water.

The evidence for libelants showed that the schooner left T wharf between 10 and 11 o'clock in the morning, and was beating down the harbor. When she pulled out from T wharf, she stood first on the port tack, towards South Boston. She then tacked, and stood on the starboard tack, over to Jeffries' Point, in East Boston, where she came about again, and stood again on the port tack, to the southward, towards South Boston. She came about again when about a third of a mile off the starboard bow of the steamer, and stood across her bows, on the starboard tack, and while on this tack came in collision with the steamer. The steamer was not seen from the schooner until after she had come about, and gathered good headway, on this last starboard tack.

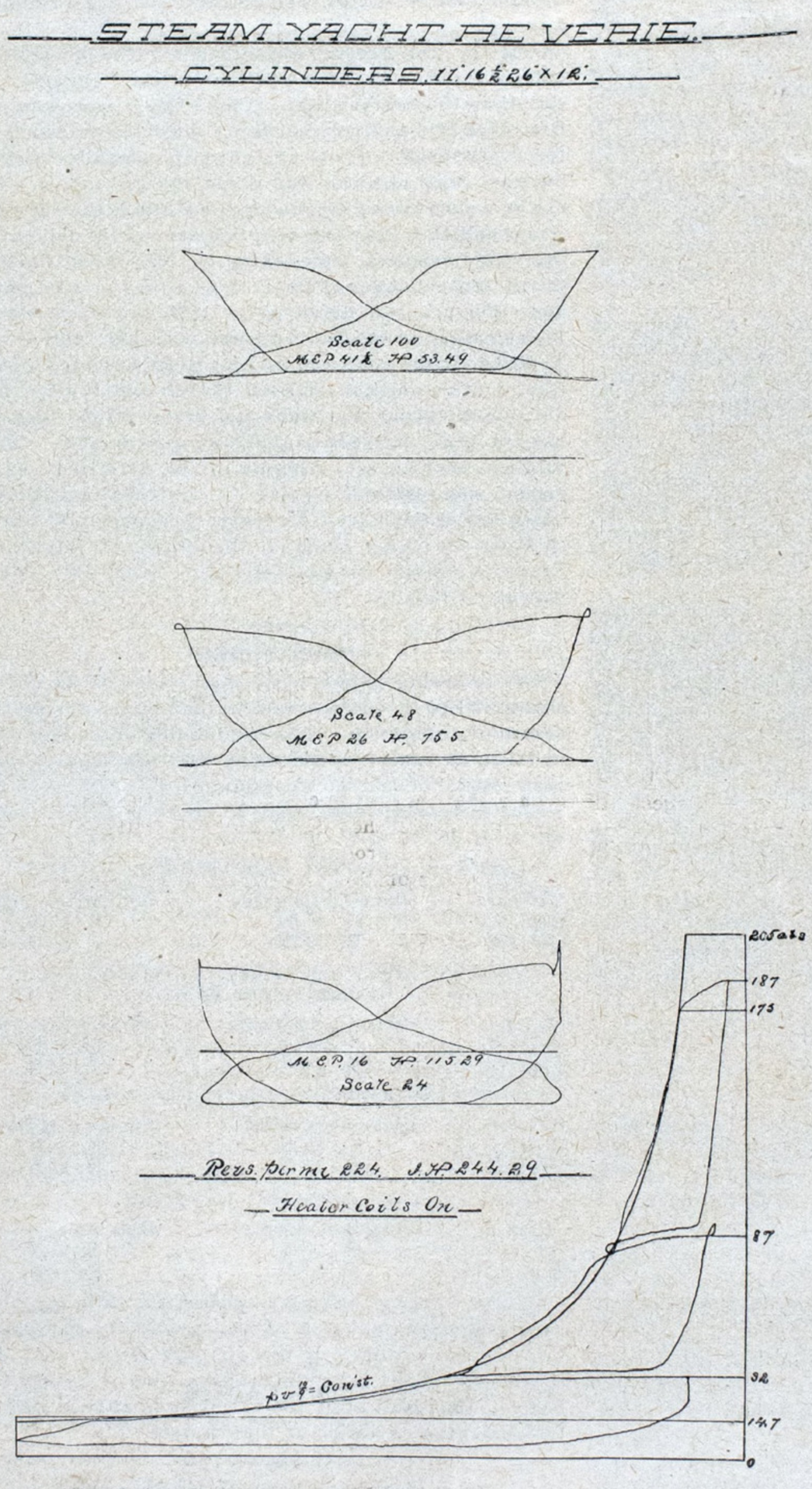
The evidence on behalf of the steamship was that she left her dock in Charlestown shortly before 11 o'clock, and proceeded down the harbor in the usual way, and at the usual speed, in charge of a licensed pilot. The pilot was on the bridge with the master and third officer. The schooner was seen by the master and pilot of the steamer, from the bridge, while she was making her first starboard tack, towards East Boston, and they then determined upon their course for passing and avoiding her, which was to wait until she should have come about on the port tack, and crossed the steamer's bows towards South Boston, and then pass under her stern. In pursuance of this determination, the steamer was slowed until after the schooner had run out her starboard tack, and crossed the steamer's bow on her port tack, and then started up to pass under the schooner's stern; but she had scarcely started when the pilot and master of the steamer perceived that the schooner was unexpectedly tacking again, right off the steamer's starboard bow. The steamer was at once stopped, and immediately afterwards her helm was put hard a-port, and her engines were reversed at full speed for three minutes before the collision. The port side of the schooner came against the steamer's bow, which cut into her about two feet, and the schooner sunk. At the time of collision the steamer had been almost stopped. There was much evidence introduced on behalf of the steamer that her efforts to avoid the schooner, even after the latter tacked so unexpectly when close to the steamer's starboard bow, would have been successful, had the schooner held her starboard tack, but that the schooner, just as she was crossing the steamer's bow, luffed up in the wind, lost her headway, and drifted on to the steamer. Witnesses called for the schooner, however, denied that she, at this time, did luff into the wind and lose her headway.

The opinion rendered in the district court by Nelson, District Judge, was as follows:

"It plainly appears from the evidence in the case that the collision was caused by no fault of those in charge of the Philadelphian, but was caused solely by the gross negligence of the master of the Lizzie Williams, in coming about upon the starboard tack, when on the southerly side of the channel, and running across the bows of the steamer, for which change of course no necessity or excuse is shown."

Before Putnam, Circuit Judge, and Webb and Aldrich, District Judges.

Per Curiam. Upon careful examination of the evidence, as presented by the record of these cases, and full consideration of the able argument for the appellants, the court perceives no error in the conclusion of the district judge. The testimony in behalf of the steamer comes from intelligent witnesses, who were in position to know fully the measures taken to avoid a collision, in respect to which they testify, and shows that every precaution required of those navigating the steamer, for the avoidance of the collision, was promptly exercised. The failure of witnesses looking on from remote points, or even of those aboard the schooner in motion, to observe or to know such precautions, cannot overcome this clear consent of evidence from the witnesses who co-operated in those precautionary manoeuvers. The schooner, beating out of Boston harbor, where the working channel for large ocean steamers, like the Philadelphian, is narrow, while she had a right to tack when necessary or highly prudent, should still have taken some care to see that, by tacking, she did not make it impossible for either sailing or steam vessels following her to keep clear, and, if practicable, to have held on her tack long enough to avoid such result. That in this case the schooner could safely, and ought to, have stood longer on her port tack, we think, is clear. If the witnesses for the libelants are correct in denying any vacillation in the navigation of the schooner, then it is plain that the whole trouble was caused by her sudden and unnecessary tacking, whereby she so threw herself in the path of the steamer as to make collision inevitable. If, on the other hand, at the time she tacked, there was room for her, by holding her course, to go clear, but by hesitation, and first luffing and then falling off, she lost the very short time when she could have safely crossed the steamer's bow, the fault was still hers. But we are of opinion that the witnesses in behalf of the steamer are mistaken about the schooner's luffing and falling off, and that the whole evil was caused by the schooner's improperly and unnecessarily tacking across the steamer's bow, and in so close proximity that she could not be avoided. Decree of the district court affirmed. Fed. Rep., Vol. 61, p. 863.




## INLAND LLOYDS SUPPLEMENT.

The Inland Lloyds Supplement for September mentions only 13 vessels, one, the propeller Minnie E. Kelton, being the only new vessel named. She was built by F. W. Wheeler & Co., on builders account and measures 503 tons, quoted for insurance purposes at a valuation of $50,000. The Lizzie A. Law appears as a barge, rating A2 and valued at $20,000.

## BEST ATLANTIC RECORDS.

The Cunard Line ocean greyhounds Campania and Lucania each established new transatlantic records last week, the former cutting one hour and twenty minutes from the eastward and the latter fifty-one minutes from the westward record.

The Lucania arrived at the Sandy Hook light-ship on Saturday last, after a passage of 5 days, 8 hours and 38 minutes. Previous to sailing for New York she had just come off the dry dock, where she had her bottom cleaned. The Lucania wrests the supremacy from her sister ship, the Campania, beating the record made by the latter two weeks ago by fifty-one minutes. She sailed from Liverpool August 25th, leaving the Rock light at 5:30 p. m. and crossing the bar at 6:18 p. m. The next day she sailed from Queenstown and at 12:55 p. m. Daunt's Rock was abeam. With a light breeze the vessel made up to noon of the 27th 523 knots. For the next twenty-four hours the wind was fresh from north, northwest and west, changing to southwest, and the Lucania increased her speed, making 555 knots. The wind on the following day was from the northwest and west northwest, a fresh to moderate breeze prevailing, and the day's run was 527 knots. During the latter part of the 29th the weather increased to a strong gale from west northwest with high southwest sea and it was hazy. At noon of the 30th the score was 530 knots for the day. A fresh breeze from the west sprang up, the weather became clear and then moderated, and in the morning of the 31st the wind was stronger, but still moderate, the weather being hazy. The run for this day was 541 knots. The run of 111 knots to Sandy Hook light-ship was then completed, the total distance covered being 2,787 knots.

By her present performance the Lucania gives two Friday night arrivals to the credit of her company, and she not only wins the westward record, but also the ocean record—the best time either way. Her sister ship, the Campania, Capt. Hains, arrived at Queenstown August 31st after a voyage of 5 days, 10 hours and 47 minutes, beating her own previous record by 1 hour, 20 minutes, but still behind the record she scored on her last westward trip, of 5 days, 9 hours and 29 minutes. Her course was a longer one, however. On her ocean record-breaking trip her hourly average was but 21.49 knots, the course being 2,783 knots, while on this trip she completed 2,814 knots at an average speed of 21.51.

The Lucania, in her 2,787 knots, made an hourly average of 21.65 knots—better time than was made on either of the Campania's recent record-breaking trips. Her daily average for the five complete days' runs was 535.2, against the Campania's 515.8 on her last trip this way. The Lucania's last westerly record-breaking trip was made last November in 5 days, 12 hours and 47 minutes.

This was the best westerly record until the Campania's trip of two weeks ago. The Lucania's best easterly run, though not a record, was made in June. It was 5 days, 12 hours and 59 minutes. The best day's run she ever made on any trip was 560 knots, and the best hourly average she ever made was on a previous trip, when, in twenty-four hours it averaged 22.78 knots. The Campania's best spurt for a similar time was in June and was 22.54.

The Campania made the passage in 5 days, 10 hours and 47 minutes, beating the record by one hour and twenty minutes. Her daily runs were: 466, 513, 454, 511, 505, 365. She made the passage in October, 1893, in 5 days, 12 hours and 7 minutes, which established the record between the bar, New York, and Daunt's Rock.

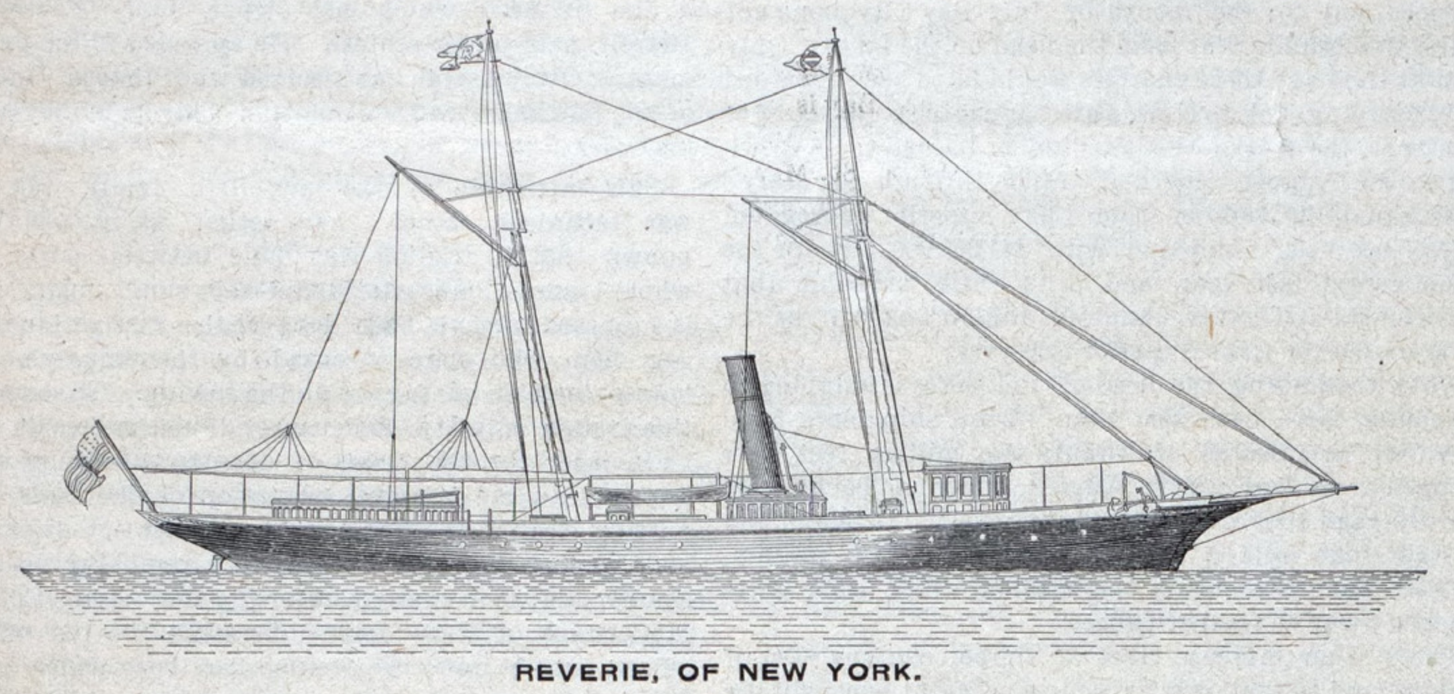
The distance covered by the Campania was 2,814 knots, an average of 21.50 knots per hour. The vessel had to slow down for nine hours because of fog.

The average of the Campania is therefore much below that of her sister ship, the Lucania, on a previous trip, which logged 21.61 knots per hour, but on a longer course.

### THE REVERIE.

(ILLUSTRATED.)

We illustrate this week the steam yacht Reverie, Mr Frederick G. Bourne, of New York, owner. The yacht is 110 feet long on the water line, 16 feet 8 inches beam, and 8 feet 7 inches deep and draws 6 feet of water; her registered tonnage is 92.15 tons gross and 53.48 tons net. The machinery was built under the supervision of the Babcock & Wilcox Co., of New York, and consists of an inverted condensing triple compound engine with cylinders 11 inches, 16½ inches and 26 inches diameter by 12 inch stroke, using 225 pounds pressure. The cylinders are fitted with piston valves throughout, having one high pressure, two intermediate and three low. Figure 1 is a set of cards and combined diagram. These cards were taken when the engine was running at a



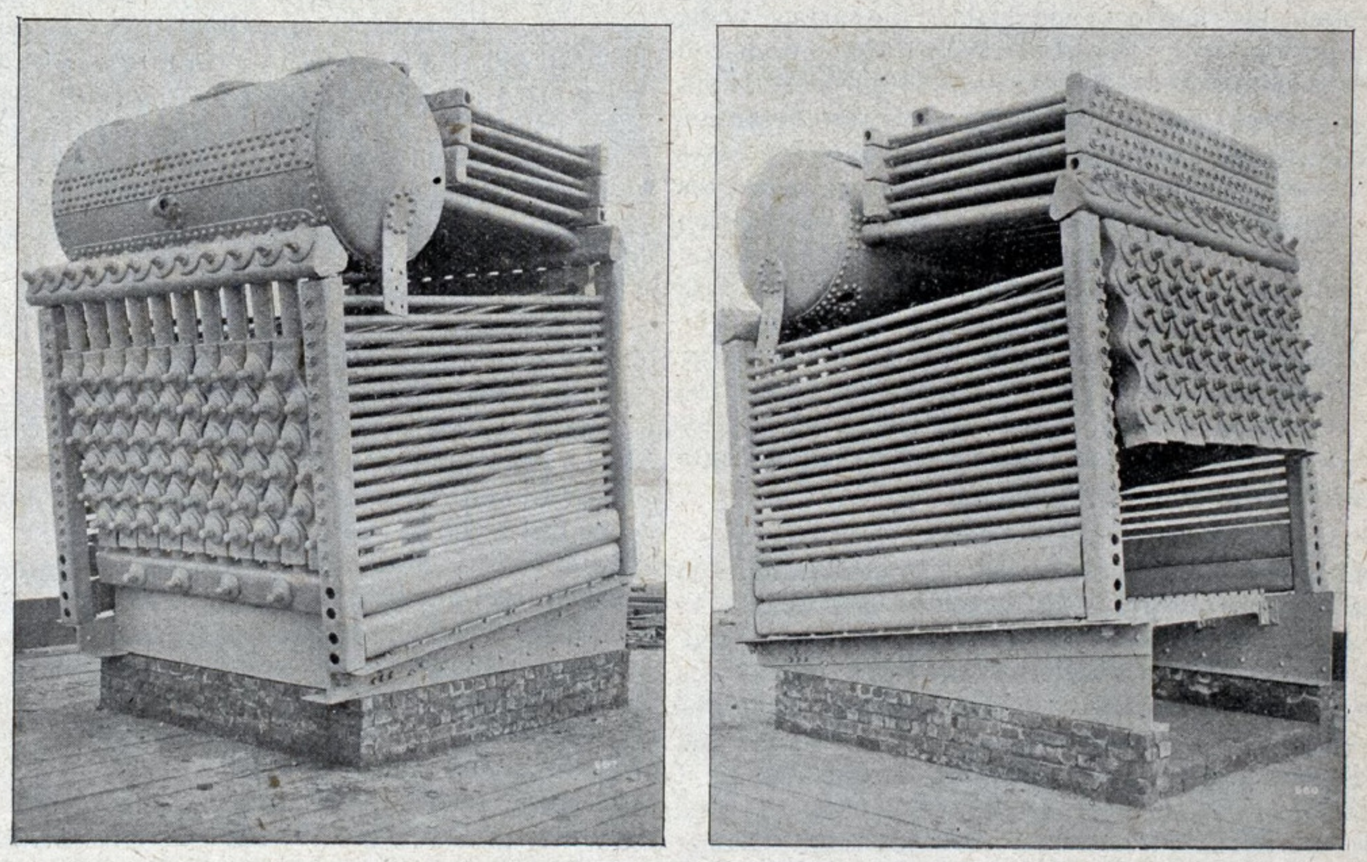
REVERIE, OF NEW YORK.

moderate rate, giving a cruising speed of 14 knots per hour, the I. H. P. being 244 at 224 revolutions per minute, with a steam pressure of only 190 pounds. The re-evaporation shown above the PV curve on the intermediate card is caused by reheating coils placed in the receivers between the cylinders and is supplied with live steam from the boiler. The air pump is driven from low pressure cross-head, the diameter of pump being 8 inches, with a stroke of 6 inches. The auxiliaries consist of a centrifugal circulating pump and engine, one 100, 16-candle power light Deihl dynamo, driven by a 5 inch by 6 inch Case engine, a Sturtevant blower with two cylinders, 3½ by 4 inches, all directly connected. There is also a Bairds evaporator, with its pump, capable of evaporting 400 gallons of water in 24 hours, a duplex pump 5¼x3½x6 inches, and an injector, for feeding the boiler. The steam is supplied to all these auxiliaries and the main engine by one Babcock & Wilcox marine water tube boiler, 10 feet 6 inches long, 7 feet wide and 9 feet 7 inches high, constructed entirely of wrought iron and steel, there being no cast or malleable iron whatever entering its construction.

In order to make a durable boiler, it is necessary to have every square inch of surface, both inside and out, accessible for cleaning, so the Babcock & Wilcox Co., from their long experience, have decided upon a design with perfectly straight tubes, all running fore and aft, so that the removal of any cap placed opposite a tube end exposes that tube to view. From the cut it is apparent that all work, such as cleaning or renewing a tube, can be performed from the front and rear of the boiler, thus avoiding the necessity of entering a hot combustion chamber, or taking the entire boiler to pieces, as is often the case. The following gives the essential particulars relating to the boiler: Heating surface, 1,235 square feet; grate surface, 40 square feet; ratio of heating surface to grate surface, 31 to 1; weight of boiler (dry), 20,515 pounds; weight of boiler (wet), 26,084 pounds; weight of boiler per square foot of heating surface (dry), 16.16 pounds; weight of boiler per square foot of heating surface (wet), 21.12 pounds; diameter of stack, 34 inches; height of stack above grate 25 feet.

During a test of the boiler for capacity, 506 H. P. (a horsepower being equal to 15 pounds of water evaporated into dry steam, triple compound engine practice) was easily developed for eight hours of continuous steaming. This is equivalent to 12.6 H. P. per square foot of grate. The boiler consists of one bank of lap-welded wrought iron tubes 2 inches in diameter, connected at their ends by being expanded into forged steel headers, arranged to give the tubes an inclination of about 15 degrees. The bank is connected at its bottom and lower ends by a common water connection in the rear of the bridge wall, and above, at front and rear, to a common water reservoir, the latter being entirely shut off from the action of the heat. The circulation of water through the boiler, on account of the inclination given to the tubes, is positive, and always in one direction, namely, from the drum down the rear headers, up the inclined tubes to the front headers, returning through the upper return pipes to the drum. On account of the inclination of the tubes, there is no trouble in forcing the boiler with a blast in the ash-pit to the limit of the ability of the fireman to handle the coal. From the inclination of the tubes and the full sized connection between all parts, it is impossible for steam pockets to form at any point, consequently the heating surface is always thoroughly covered with water. The headers into which the main heating tubes are connected are corrugated for the purpose of staggering the tubes, and present the surface more directly to the action of the gases, and serve to mix the gases in their passage across the tubes. The side headers are not corrugated, but plain, so as to enable the tubes to be set in a vertical row, to form a portion of the side casing of the boiler. The side and central sections are so connected as to make the water circulation the same in both. The headers are formed of a plain sheet of open-hearth steel, one-half inch in thickness; the tube holes are bored one-sixteenth of an inch larger than the diameter of the tube to facilitate the removal of the tube if necessary. The same applies to the headers forming the side slabs inclosing the boiler, with the exception of the staggering. The hand-hole fittings for closing the hand-hole openings opposite each end of each tube, are all wrought metal, consisting of nut, hand-hole plate, bolt and inside guard. The inside guard is formed in such a manner as to close the opening against any serious leakage, should the 1⅛-inch bolt used for this purpose give out from any cause whatever, and prevent the emptying of the boiler, except such loss as would be caused by a leaky joint of very small area. All the joints between the various parts of the boiler are formed by expanding heavy, lap-welded, wrought iron tubes into bored holes. The elevated steam and water reservoir at the rear end of the boiler is reinforced by heavy straps, double riveted, on the outside, into which the horizontal tubes at the top of the boiler, connecting the front end of the headers with the drum, are expanded, and also on the bottom side of the drum, into which the circulation tubes, extending down into the headers, are expanded. The heads of the drums and the man-hole stiffening rings are flanged at the same heat. The casing of the boiler is formed of wrought iron, with doors at front and rear for access to the ends of tubes, through which all the headers can be reached, and the inside surface through the manholes. The exterior surface of the tubes can be cleaned from soot by a blow tube passed between the nipples in both front and rear of the boiler. The side casings are formed of sheets of asbestos mill-board, ¼ inch thick, laid against the tubes forming the side sections. This is in turn covered by a casing formed in slabs, consisting of two inches of magnesia covering supported by light wrought iron plates. The whole of the casing can be removed in sections for exterior examination of the tubes if desired.

Above the boiler proper, inclosed in casing form in the same way, is placed a feed water heater, through which all the water fed to the boiler is supplied. Should this become disabled, it can be shut off and the boiler fed directly from the feed pump. This arrangement reduces the temperature of the escaping gases very materially, and insures the boiler being fed with hot water. The material used throughout is open-hearth steel, hydraulic forged from rolled plate into the shapes shown herewith, after having been heated in a reverboratory furnace. Only one operation is taken on any plate at any one heat, and every forging is annealed after it has had the last operation taken on it. The tubes are the best lap-welded, charcoal iron tubes that it is possible to manufacture. The endeavor has been to perfect a marine type of Babcock & Wilcox boiler in which absolutely every pound of metal under pressure shall be either the best open-hearth steel or wrought iron, and in which every square inch of heating surface, inside and outside, shall be accessible for cleaning and actual inspection. This they have succeeded in doing, and there are no cast iron fittings or other devices to be used, but every part has been designed and especially made for the purpose for which it was intended. The development of forged headers and other parts is the last step in the perfection of the design which they felt was absolutely necessary to insure success.



THE BABCOCK & WILCOX WATER-TUBE BOILER.

### TO BRIDGE THE HUDSON RIVER.

The report of the committee appointed by the President to investigate and recommend what length of span, not less than 2,000 feet, would be safe and practicable for a railroad bridge to be constructed over the Hudson river between New York and Jersey City, find that a 2,000 foot span cantilever bridge, with a pier in the centre of the river would be safe and practicable and that its cost, including viaduct, would be $26,723,000. The cost of the centre pier is estimated at $9,710,000; the depth of rock foundations within limits of the bridge location being 260 feet; nearly 100 feet deeper than the existing foundation.

A 3,100 feet clear span cantilever from shore is found to be possible but impracticable on account of its expense, $51,123,000.

The board reports that investigation satisfies it that a six track 3,100 feet single span suspension bridge would be safe and practicable, and would, if certain constructions were adopted, cost $35,367,671. Such a bridge would carry six maximum freight trains moving side by side at full speed. A plan is worked out and submitted for a lighter structure suspension bridge, which the board believes would meet every possible demand with absolute safety at a cost of $30,743,000.

The board say they "feel that the contingency attending the construction of the deep river foundations of the cantilever bridge is enough to balance a part of the greater cost of the suspension bridge."

The report is signed by all the members of the committee: Major C. W. Raymond, of the United States Engineer Corps; G. Bousecareu, C. E.; Professor William H. Burr, of Columbia College; Theodore Cooper, C. E,, and George S. Morison, C. E.

# THE MARINE RECORD

ESTABLISHED 1878.

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WITH the International canal conference at Toronto, matters progressing satisfactorily for the ship canal to connect Lake Erie with the upper valley of the Ohio river, and the 2,000 men who will be put to work on the Hennepin canal in a few days, this will certainly be the canal month for the western country at least.

THE thick smoky weather continued on the lakes all week and the greatest care must have been exercised by masters and officers to prevent strandings and collisions. A few years ago it was considered a matter of course to hear of a collision or two occurring during a dense fog even of a few hours duration, but all this seems to have changed for the better and it is congratulatory to note that no serious casualties involving loss of life and property has taken place even after weeks of thick smoky weather prevailing all over the lakes. From this showing it may be clearly argued that lake pilots are not only putting forth all the skill at their command, but that the masters and officers of today are far in advance of their brethren of a few years ago, who found it difficult enough at times to move slowly along with sail craft, while now a railroad gait and regular time schedule is demanded of steamboatmen.

A MERITORIOUS device that does not seem to meet with the favor to which it is entitled is the Ward buoy or indicator for marking the location of sunken vessels. The stand of this indicator is fixed to the deck, and, after a certain period of immersion, a globe, which is attached to the stand, becomes loose and floats to the surface, being held in position by a piece of braided wire having one end fast to the standard, which is screwed to the deck. It has been suggested that a modification of this invention would be useful in marking shoal places on the lakes where vessels occasionally strike. Such an apparatus could be easily thrown overboard when an obstruction was met with, and the indicator, buoy or watcher would then float to the surface, while the weight or anchor with the cord attached would remain to mark the foul bottom. The inventor of the Ward buoy is with the Frontier Iron Works, of Detroit, and his attention should be given to getting out something like his present device only on a scale which would permit of its coming into more general use and adapability.

MARKED features showing the extreme caution and accurate navigation which lake tonnage must observe to keep clear of trouble may be noted in the recent stranding of the City of Cleveland on North Bass Island while on her route to Put-in-Bay. In this case the steamer was only about twice her own length out of her course, and yet she laid herself easily on a soft bottom, though it required some considerable towing and a change of wind to get her afloat again. Last week the large steamer North West was only permitted to drift a ship's length through the parting of a wheel chain when she fetched up and experienced some little detention, occasioning lurid dispatches and newspaper specials relative to her so-called serious grounding, which, after all, only amounted to her sticking her nose in the sand for a few hours. Going slow, exercising all possible caution and being alive to any and all emergencies are the safeguards shipmasters and pilots on the lakes accustom themselves to in thick weather, but, it is safe to say that there is no highway of commerce in the world where a more careful tracking of a ship's position is observed or required than on the north-western lakes and their connecting waters. Given the same conditions on the coast, and half the time half the mercantile fleet would be stranded and the other half would be engaged, not in carrying on the commerce of the country, but in assisting the "lame ducks" to get afloat again.

### LAKE SUPERIOR LUMBER

With the depletion of the forests around lower lake ports, the Lake Superior district is being heavily taxed to keep up with the demand and the ready supply received from that section the past season goes to prove that for some years yet a brisk trade will be entered into with the lumber interests of the north-west. Ashland, Wis., was until this year the largest lumber shipping port on Lake Superior. Now Duluth, Minn., forges to the front reaches about ten million feet ahead of all other ports, and takes no little pride in her new shipping industry. The Duluth lumber shipments aggregate for the season nearly eighty million feet, Ashland ten million less and West Superior totals about ten million feet.

There arrived this week at West Bay City from Duluth a consignment of three million feet, consisting of three cargoes, and for the month of July Bay City alone got thirty-five million feet from the head of the lakes. Only a short time ago these charters would have been regarded like "carrying coals to Newcastle," as Saginaw Bay is, or at least was, the seat of the lake lumber industry. According to the August report of traffic through St. Mary's Falls canal, the lumber from Lake Superior aggregated 325,966,000 feet, compared with 244,358,000 feet for the same period last year, and it is quite probable that between six and seven hundred million feet will be the total shown for Lake Superior this year.

Notwithstanding the head of the lakes is shipping to all points, there have also been liberal shipments from Bay City, as upwards of twenty one million feet were shipped from that port in August, of which Tonawanda and Chicago took nearly five million each, Cleveland and Buffalo four million, Toledo upwards of two million, Detroit and Erie nearly one million, while other ports reached away to smaller figures.

There is an immense tract of timber country west of Duluth, and to that port as well as adjacent ones will the enormous shipments necessary for future supplies be sent for transportation over the lakes. The disastrous forest fires now raging have certainly consumed millions of dollars' worth of this product, but there is no doubt that sufficient standing timber will be left so near the point of shipment that the expense of getting it out will not be a bar to competition with the Canadian pineries along the north and east shores of the lake, and so that the Lake Superior shipments from the head of the lakes next year will far exceed even the phenomenal output of the present season.

### PASSING SIGNALS.

It is reasonably human and of quite frequent occurrence for a passenger to acquire more nautical wisdom in a trip or two than is contained in the craniums of those who steadily follow sailing for a livelihood. There is perhaps not a trip made by an Atlantic liner without criticisms, if not severe censure, under certain circumstances, being privately launched against the master, engineer or other officer by occasional travelers who are quite sure that rules are not properly enforced, discipline might be enhanced or that opposite action would best meet the exigencies arising during the few days that they are on board, etc.

The features mentioned above amounts to a universal craze, so that we are not surprised to learn of a Bay City novice constituting himself an agent of the U. S. Treasury Department while enjoying a tour of the Lakes, and rounding up his vacation by making all sorts of ridiculous charges against lake masters and pilots.

The especial form in which the Bay City critic ventilates his superior powers of observation in matters technical, runs to the non-observance of passing signals when boats are within hailing distance. He makes charges and counter charges against steamers for not tooting their whistles on all imaginable occassions, when he knows, or ought to know that the best thing a steamboatman likes to hear is his own whistle, and the next best is the whistle of some other fellow. However, the censure emanating from this passenger, versed in the steering and sailing rules, falls to the ground in the absence of a straightforward statement giving names, time and places where the rules were infringed and for sweet charity's sake we draw a mantle over his rodomontade and assume that the aberration of audibility of sound misled one unaccustomed to pick up the signals given by vessels passing about half a mile from each other.

### MISPLACED ZEAL.

There are many minor features of annoyance to commerce cropping up from time to time on the lakes through the misplaced zeal of customs officials. Perhaps this subject is more noticeable on the Canadian than the American side, although we must candidly admit that the desire to hold foreign tonnage to the strict letter of the law is not always honored in the breach at American ports. Still, it is these petty squabbles which tend to keep alive a feeling that ought not to exist between countries so closely allied in most matters as Canada and the United States are on the lakes. Paltry fishery squabbles and misunderstandings, whereby fines, penalties, etc., are enforced by either side, is surely not the way to maintain those amicable relations which ought certainly to exist for the facilitation of general commerce.

Our allusion may perhaps be more generally understood by referring to the case of the steamer George L. Colwell, which, in passing through the Welland canal last spring, towing the schooner D. P. Dobbins, dropped her tow line while on one of the levels, and hired horses to tow the schooner. At the end of the level she took up the tow line again, and towed the consort through. The Customs officer complained of her on the ground that the act was trading at two Canadian ports, without stopping at an intervening United States port, which is a penal offense, according to the Canadian law. The authorities imposed a fine of $400, which her owner, Jesse Farwell, of Detroit, paid under protest. He appealed to the government at Ottawa, and has received word that all but $100 of the fine has been remitted, and that the money awaits his order.

This infraction of the law, if it really was such was technical rather than actual, as it was easily known that no trading was done between ports. The whole transaction is considered very small business, and is supposed to have been done at the instigation of the tug men, who were incensed by the employment of horses instead of tugs to do the towing. To overcome this system of petty officiousness, if not malice, it would be in order for the heads of departments to promptly inquire into any assumed relaxation of the laws before putting vessels to inconvenience, detention or expense and then, as in several cases recently, remitting the entire charge, and, as in one case, referring to Customs Collector McCormick of Pelee Island, disrating the too officious officer, but not until the feeling had been widely engendered that reprisals and recriminations should be the future order of the day at national lake ports.

IF the steamers St. Paul and St. Louis now under construction at the yards of the Cramps Shipbuilding Co. are to hold up the prestige and superiority of American shipbuilding they already have their work cut out for them in the recent record breaking trips of the Cunard sister ships Campania and Lucania. The Lucania, which sailed from Queenstown at 12:45 p. m. Aug. 26, passed in at Sandy Hook at 5:18 on Friday afternoon. She has, therefore, lowered the record of the steamer Campania, of the same line, as in order to equal the Campania's time of 5 days, 9 hours and 29 minutes, made this month, the Lucania should have reached the Sandy Hook lighthouse at 5:39 p. m. Allowing twenty minutes for the run from the lightship to Sandy Hook she has beaten the Campania, who formerly held the fastest Western record by forty minutes. The best previous Western record of the Lucania was 5 days, 12 hours and 47 minutes, which was held as the record until Aug. 17 last, when the Campania made the run in 5 days, 9 hours and 29 minutes. The Eastern record shows that the Campania, which sailed from New York on August 25, made the passage in 5 days, 10 hours, 47 minutes, reducing the record 1 hour and 26 minutes. Another notable trial of speed on the Western run made last week was that of the steamer Fuerst Bismarck, which arrived at New York from Southampton on Friday last, in 6 days, 10 hours, 50 minutes, only seven minutes behind the record. Of course it is not to be expected that the first or perhaps not even on the second season of the St. Paul and St. Louis will they equal the above records, as it has been generally found that it takes two to three seasons to get the best speed and general efficiency out of these Atlantic leviathans, but that they will "toe the line" no one has any doubt.

THE position now taken by vessel owners, chiefly at the port of Cleveland, but augmented by owners from other ports as well, is one that ought to have set in some time ago. Iron ore paying a fair living rate of freight has uniformly been ready for shipment from Lake Superior and to obtain such cargoes, coal has been carried up at an actual loss to the vessel wherever a little detention was experienced. In the freight schedule on coal no attention was paid to the prevailing ore or grain rates and instead of taking only a few hundred tons for ballast where ballast was required, the custom became prevalent of loading a full cargo at nominal rates, trusting to the down freight to meet the total expenses of transportation both ways. At present figures, that is, allowing fifty cents on coal, the gross freight on the round trip only amounts to what a short time ago would have been considered a moderate freight on the down trip alone, therefore, for self preservation owners have been obliged to make a rate on coal below which it is next to impossible for a vessel to clear expenses. This phase of the question has been so clearly placed before owners individually and collectively during the past season or

two that the unanimity now existing to charter from Ohio ports for Lake Superior at nothing less than fifty cents per ton, is rock ribbed and commendable from every standpoint. At this season of the year not even wooden boats require ballast for the up trip, and as coal must be transported to the northwest it is right and equitable that it should pay its moiety of transportation charges.

SHIPPERS will need to get hold of tonnage more cheerily than they have been doing lately if the head of the lakes is to be stocked up as usual in former seasons. Coal receip's at Superior, according to recent figures, only amounted to 558,000 tons, anthracite and bituminous combined. It is estimated that the total amount of coal which will be received at the head of the lakes this season will be represented by what was received last year less the amount that was left on the docks at the opening of navigation this spring. This would bring the receipts up to about 1,700,000 tons. It should also be remembered that the best portion of the season has gone by, and as the fall approaches, so must the rates of freight advance.

## LAKE FREIGHTS.

There is little change in lake freights since a week ago, except that the Escanaba ore rate touched the 50 cent mark and dropped back again to 45 cents, while the advance to 50 cents on coal to Lake Superior has been paid on a few cargoes and is likely, if not certain, to be the ruling figure in a few days, charters to Portage having been made on Tuesday at 45 cents on steamer with consorts, and 50 cents on steamer alone. The Chicago rate on wheat has been steady at 1½ cents per bushel to Buffalo, with a feeling that this rate will soon advance, although it marks a rise of ⅛ cent from last week.

The ore rates are as quoted for some time past, 80 cents, 65 cents and 45 cents, respectively, from the head of the lakes, Marquette and Escanaba, although a 10 cent raise has been asked from Ashland, owing to an offer of 85 cents being made on a special charter.

Wheat from Duluth, which has been steady at 2½ cents, has dropped ¼ cent, owing to the railroads being stopped by the forest fires, thus delaying receipts for shipment. The Chicago rate is steady at 1½ cents wheat to Buffalo, 1¼ to 1⅛ cents on oats; and Toledo, 1¼ cents; Detroit, 1¼ cents.

Coal to Lake Michigan from Ohio ports and Buffalo is steady at 50 cents, and this rate is held out for at Cleveland for Lake Superior. From Buffalo 30 cents is the Duluth rate, and 25 cents to Toledo; Kenosha, 55 cents.

## BUFFALO COAL SHIPMENTS.

The coal shipments for August exceeded the shipments for August, last year, by 1,043 tons. The following table will show the movement by months for the two seasons.

| | 1893. | | 1894. | |
|---|---|---|---|---|
| April | 178,040 | tons | 110,997 | tons |
| May | 363,435 | " | 230,747 | " |
| June | 391,580 | " | 384,663 | " |
| July | 254,070 | " | 318,672 | " |
| August | 252,945 | " | 253,988 | " |
| | 1,440,070 | | 1,299,067 | |

This reduces the falling off so little that it practically leaves it where it was a month ago. Shippers do not predict any improvement at present, and the chances are that the present slow movement will continue for some time, especially as ore charters are so brisk that it hardly pays to handle coal at so low a going rate as is now quoted to the head of the lakes.

## GREAT STEAMING.

The torpedo boat destroyer Lynx, designed and built by Messrs. Laird Bros., Birkenhead, whom Americans will remember as the builders of the Confederate cruiser Alabama, was recently given tests for steam and speed which consisted of three hours' continuous steaming under full power forced draught. After running for half an hour, during which the extraordinary rate of speed 28.3 knots per hour was obtained, and there was every prospect of a successful result, a small three-eighths steam pipe in connection with the evaporator used for obtaining the feed make-up for the boilers unfortunately broke at one of its joints, and as the contractors did not wish to run the remainder of the trial under the disadvantage of the evaporator not working, it was decided that the admiralty trial should be postponed. A sister boat to the Lynx, named the Ferret, constructed by the same firm, completed her trials a month ago with a speed of 27½ knots. During the half-hour's run the Lynx considerably improved upon this performance, making a speed of about 34 miles an hour as against 32 for the Ferret. The sea trial which the Lynx had in going around to the proving ground or measured mile course gave her a mean rate of 19½ knots per hour.

## KEEPERS OF STATIONS APPOINTED.

Secretary Carlisle, through the Superintendent General of the Life Saving Service S. I. Kimball, has appointed Frank Fountain keeper of the old Chicago life saving station, at the pier of the Illinois Central railroad, and authorized the appointment of a crew of eight men. This gives Chicago two life saving crews, or rather, the original crew is located at the old Fair grounds. Secretary Carlisle also transferred Telsford Boutin from the Sturgeon Bay canal station and appointed him keeper of the Milwaukee, Wis., station, vice Jason E. Patton, resigned. Boutin is well known to have an exceptional record, and to be a life saver of many years' experience.

## LIQUID FUEL.

The crusade of the Chicago city authorities against the smoke of tugs ended for a time when Mayor Hopkins admitted to a delegation of tug men that the experiments with crude oil for fuel on the tug Black Ball had proved failures. There were over a hundred cases against the tug men set for hearing on Tuesday last. All these were indefinitely postponed until such time as the city could find a substitute for soft coal. The admission of the mayor that the Black Ball experiments were not satisfactory was a great surprise, as Smoke Inspector Adams had pronounced each successive test "a perfect success." The Black Ball has been laid up for three weeks. The last trouble came from the foaming of the boiler. The crude oil was sprayed with steam jets against the red hot fire brick. When the boiler foamed, water went through the jets in place of steam and put the flames out. The oil continued to run through the feed pipes and the hot brick turned it into gas. When the fireman attempted to light it there was, of course, an explosion. Automatic regulators are being put in which may avert this difficulty.

## ASHLAND SHIPMENTS.

Shipments from Ashland for last week were: Ore, 87,400 tons; for the month, 352,013 tons; for the season, 1,146,722 tons; lumber for the week, 4,350,000 feet; for the month, 16,135,000 feet; pig iron, 2,300 tons for week; coal receipts last month, 45,529 tons.

## THE TORONTO CANAL CONVENTION.

Anent the Toronto Canal convention, Capt. McDougall writes to the committee on investigation as follows: "I am in favor of a 20-foot channel from Lake Superior to the sea, via the St. Lawrence route. I have given the matter a great deal of consideration, having travelled the route many times. From what I know of the route and the kind of vessel best suited for cheap river and lake transportation, also of ocean trade, port charges, cost of transfer, the requirements of cargo stowage for an ocean voyage, the different class of men to manage ships on sea and the lakes, I feel confident that the most profitable plan would be to transfer at Montreal or Quebec. I have just visited the Sault Ste. Marie canal and think every Canadian has reason to be proud of that work, for doubtless it is the greatest canal construction ever known in so short a time."

## THE WORLD'S STEAM POWER.

These interesting figures are given by the bureau of statistics in Berlin: Of the steam engines now working in the world four-fifths have been constructed during the last twenty-five years. France has 49,590 stationary and locomotive boilers, 1,850 boat boilers, and 7,000 locomotives; Germany, 59,000 land boilers, 1,700 ship boilers and 10,000 locomotives; Austria, 12,000 boilers and 2,800 locomotives. The working steam engines of the United States represent 7,000,500,000 horse power; Germany, 4,500,000 horse power; France, 3,000,000; Austria, 1,500,000. This estimate does not include the locomotives, whose number in the world is 105,000 representing a total of 3,000,000 horse power. The world's steam engines, therefore, aggregate more than 26,000,000 horse power, equivalent approximately to the work of 1,000,000,000 men.

## LAKES ST. CLAIR AND ERIE CANAL.

One important thing remains to be settled before the construction of Lakes Erie-St. Clair canal can materialize. The townships through which the canal will pass want the syndicate that have the proposed canal in hand to build bridges over twenty roads, and to operate them, as well as keep the bridges repaired. The company say they will not construct the canal under such conditions. They add that as four big railway bridges have to be constructed, the number of bridges would simply impede traffic to such an extent that the canal would be useless. They offer to build and operate three road bridges, one in each township and another between them, and to build a gravel road parallel with the canal joining the other roads. If the townships agree to this the syndicate will promptly deposit $50,000, and the canal problem will then come within the range of practical matters.

Public money has built three Canadian canals, but this is a private enterprise. Though only 13¾ miles long, it greatly shortens the distance between northern and eastern ports. The distance saved is 112 miles on a round trip. The tonnage which annually passes through the Detroit river and which will pass through the proposed canal if completed, is estimated at between twenty-five and thirty millions. This, of course, means a majority, if not all, of the tonnage passing Detroit. The excavation of 20,000,000 cubic yards will be necessary to give a uniform depth of sixteen feet. There will be only one lock, that at the St. Clair end, which will be used to regulate the water supply for the canal. As St. Clair lake is shoal, there will be a channel dredged three miles from the shore, and at Lake Erie one-half a mile from land. Prominent American and Canadian experts say the canal will be a useful one and profitable to vessel owners as well as to the operators.

## "SHIPPING COMMISSIONERSHIPS."

U. S. shipping commissioners on the coast occupy a relative position to the Supervising Inspector of Steam Vessels in lake districs. One of these officers objected to being suspended, but Judge Cole, of the Supreme Court has rendered a decision in the matter, which was on the application of Mr. Littleton T. Dryden, of Baltimore, for a writ of mandamus directed against Secretary Carlisle to compel the latter to restore him to the position he formerly held as United States Shipping Commissioner at the port of Baltimore. The opinion of the judge was very brief and decided against Mr. Dryden. Mr. Dryden's application was based on the language of the statute creating the offices of United States Shipping Commissioner, which says that no removals shall be made except for cause. It was the opinion of the court that the matter of removals and appointments as Shipping Commissioners was discretionary with the Secretary of the Treasury, and the fact that Secretary Carlisle had removed the petitioner was conclusive evidence that he had been dismissed for cause. Further, he said, this court has no power to review decisions of the heads of the Executive Departments of the government in such cases. The petitioner, however, has two remedies left; that of quo warranto proceedings in the District Supreme Court, or by application to the Court of Claims, which court had jurisdiction of cases of claims against the government. The application was therefore overruled.

Mr. Dryden, through his attorneys, then noted an appeal.

## STAGE OF WATER AT ST. MARY'S FALLS CANAL.

DEPARTMENT OF AGRICULTURE, WEATHER BUREAU.

Depth of water at the St. Mary's Falls Canal for the week ending Sept. 6, 1894:

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Aug | 30 | 8 a. m., | 14 | feet | 9 | inches. | 8 p. m., | 14 | feet | 9 | inches. |
| " | 31 | " | 14 | " | 10 | " | " | 14 | " | 9 | " |
| " | 1 | " | 14 | " | 8 | " | " | 14 | " | 9 | " |
| " | 2 | " | 14 | " | 9 | " | " | 14 | " | 11 | " |
| " | 3 | " | 15 | " | 9 | " | " | 14 | " | 10 | " |
| " | 4 | " | 14 | " | 8 | " | " | 14 | " | 9 | " |
| " | 5 | " | 14 | " | 9 | " | " | 14 | " | 9 | " |
| " | 6 | " | 14 | " | 9 | " | " | | | | |

## TO DEEPEN THE CANALS.

William C. Clark, of the Canal Boatmen's Union, has asked the aid of the New York Central Labor Union in inducing the Constitutional Convention to submit to a vote of the people at the next election the question of deepening the New York State canals, so as to enable them tc compete with the Canadian system of ship canals which is now being, or about to be, constructed.

They wish to have the Champlain Canal deepened enough to allow the carriage of from 65 to 100 tons of additional freight to each boat, and Erie and Oswego canals enough to allow the carriage of 50 additional tons. They also wish to have the locks lengthened on the Erie and Oswego canals. These two canals are supposed to be seven feet deep, but in reality, Mr. Clark says, they are little more than five, and are gradually filling up. Between Buffalo and Albany the boats drag along the bottom, and the Champlain Canal is said to be still worse.

Mr. Clark says the Canadian Canal, from Port Colborne to Port Dalhousie, between Lakes Erie and Ontario, is a failure as a ship canal, as the locks do not admit vessels drawing more than 14 feet. The draught of laden vessels of the class used on the lakes is 16 feet. Tne Canadians now propose to divert the trade from the New York canals by cutting a new canal from Collingwood, on Georgian Bay, Lake Huron, to Toronto, 75 miles in length. This canal, if successful, would catch a good deal of the trade from the Dakotas and Kansas, which now comes through the New York canals.

## ARCTIC EXPLORATIONS.

It is refreshing to drop across an article dealing in a common sense practical way with the much mooted enterprise of Arctic explorations. Stuart Jenkins, of Toronto, in the current issue of the Popular Science Monthly writes that much might be accomplished if the proper means were resorted to and his personal experience with Arctic temperatures gives him at least the right to be heard on this subject. "I have repeatedly seen the men chopping bare-handed," he writes, "with the thermometer at —25 degrees F.,and myself have taken observations of the North Star when it was —35 degrees F. It was cold undoubtedly, but was not as bad as taking the same observation in the mosquito season." His party slept in comfort without fires when the thermometer marked 61 below, and when the temperature was somewhere below 62, which was the limit of its registry, he "went out two miles from camp on snow shoes, just to see how it would go, and, although it was cold at starting, I was warm enough before I got back."

Having shown by data and records of experiences, that hardy Canadians can enjoy life under conditions which have proved fatal to some Arctic exploring parties, Mr. Jenkins unfolds his own plan, which is in brief as follows: The exploring party would go by steamer to the head of summer navigation on Baffin bay, where a depot would be established as a base of operations, and the steamer could return to winter at Upernavik or Disco. The former place is only 1,000 miles from the pole, the distance covered on foot by the Tyrrells, in the middle of winter,with the thermometer of often --40 degrees F.,and without tents."

The main exploring party should be composed of 15 men—five white men and 10 Indians. The white men would be made up of three Canadian surveyors, for the scientific purposes of the expedition; one doctor, as a concession to popular prejudice; and one journalist or reporter to work with pencil and camera. The Indians should be picked voyagers from the Georgian Bay. The main depot or base would probably be situated at the mouth of Smith's Sound, in latitnde 78 degrees, and it would become a permanent meteorological station, and would ultimately be connected with Newfoundland by cable. About the middle of the following April the real work of the expedition would commence. The problem presented to the surveyors would be to overcome the 720 miles separating the main depot from the pole. At the lowest estimate there would be five months in which to do this, necessitating an average daily advance of nine miles on a straight line, to take them there and back. As an actual fact, they could travel for six or seven months if necessary, and the going would probably be better in winter than in summer, for snow is the traveler's friend in high latitudes. The main party, with an interpreter for communicating with the Esquimos, would start out with 16 dog teams carrying tents, stoves, fuel, blankets, etc., and two big Peterboro canoes. What difficulties the party would have to contend with above the 82d parallel, of course, cannot be known. Their motto at starting would be, "Get there somehow," and there is no doubt they would live up to it. If the theory of a Polynia or open polar sea is correct, they would take to the canoes and follow along the west coast of Greenland as far as it may project northward. It is quite probable that the pole would not be reached the first summer. From Mount Parry to the pole is 550 miles. If the most northerly point of Greenland does not reach within a hundred miles of the pole, and there were no islands visible beyond, they would scarcely trust themselves on a trackless sea in canoes. They would then have to return and commence the arduous task of portaging a good-sized steam launch piecemeal from the head depot to the polar sea. The whole freighting force of the expedition would be laid under contribution and the work pushed with unflagging vigor. The boat, of course, would be specially constructed beforehand for the purpose, and would go together and be ready for navigation in a week. Allowing the launch a speed of six miles an hour, the pole would be reached in four days.

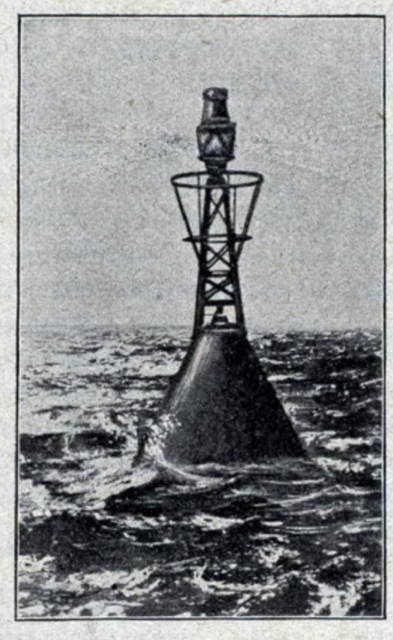
Mr. Jenkins assures his readers that finding the pole is to be no summer picnic, and seems certainly to have considered the conditions, known and probable. One point on which he lays especial stress is interesting and has not heretofore been considered in planning polar expeditions. He says that the next five years will be particularly favorable for arctic exploration. "We are now approaching a minimum sun-spot period, which experience proves is coincident with a period of mild winters. The last minimum was in 1888, a year of extreme heat and drought followed by a winter of unusual mildness. Going back 11 years the winter of 1877-78 was so mild that wild geese remained on the Georgian Bay throughout the winter and the Collingwood steamers were plying the first week in April—a month earlier than usual. The winter of 1882-83, which I spent in the northwest, was exceptionally severe and occurred during a maximum period. In our daily observation of the sun we watched the spots during the previous summer, and were astonished at their size and number."

## GAS LIGHTED BUOYS.

(ILLUSTRATED.)

The increase in the number of steam vessels on our lakes is so great and the demands of trade for quick and constant communication so imperative that the delays in getting from port to port which were once considered unavoidable will now scarcely be tolerated. It is over ten years since experiments were first made with lighted buoys off the entrance to harbors, and although the idea was considered a good one, its practical application was doubted by many. But the experiment has stood the test of time, and its success has been demonstrated beyond question. The importance of thoroughly lighting the more tortuous channels in order that vessels may make quicker and safer passages, can hardly be over estimated, and the placing of lighted buoys to mark at night all dangers to navigation is a work which, although tolerably well looked out for in the past, still leaves much to be desired.

The lighted buoys which permit of the most general use are the Pintsch gas buoys, which have been adopted by foreign countries and by our own government for use on the Atlantic coast. The Pintsch buoy is made without rivets, its body forming a compact wrought iron vessel. It is filled with compressed Pintsch gas, and on the top is the patent storm-proof lantern, supported by iron frame work as shown in the cut. The flow of gas from the reservoir into the lantern is controlled by the Pintsch regulator, by means of which a clear light is maintained no matter what may be the position of the buoy or how much it may toss in heavy seas. The storm-proof lantern is so constructed that while the necessary air is admitted to feed the flame, not a particle of water can enter, no matter how high or heavy the sea. The most searching trials have shown that the lantern answers its purpose to the fullest extent. Neither the hardest gales, the force of the waves, nor even the momentary submerging of the lantern is able to extinguish the light. By means of a Fresnel lens the light is thrown to such a distance as to be distinctly visible for six or seven miles in clear weather.



Pintsch gas buoys are of various sizes, and burn continuously night and day for from four to six months or longer without requiring the least attention, the number of days of 24 hours each that the light will burn depending entirely upon the size of the buoy. The refilling of the buoy is done by a tender by passing compressed Pintsch gas from a tank through a flexible tube into the buoy, to a pressure of six atmospheres. As Pintsch gas plants are now in operation at Buffalo, Cleveland, Toledo, Detroit and Chicago, there would not be the slightest difficulty in supplying gas to buoys placed in the vicinity of at least our more important harbors and the most dangerous obstructions to navigation in the lakes.

Considering the advantages of these buoys, their cost and maintenance are almost nothing. They would minimize the dangers of navigation at night, and the question of having them placed at various points in our lakes is one of so much importance that it should be considered by all those concerned in the welfare of navigation, and every effort made to induce the government to place them on the lakes, and, as they have already done in some cases, on the sea coast.

## ECONOMICAL ENGINES.

In a paper lately read before the American Society of Naval Architects and Marine Engineers, Mr. George W. Melville, engineer-in-chief of the United States navy, discusses the machinery of some of the latest American war vessels. The difficulty of obtaining a fairly economical engine, both at full power and at cruising speeds, is felt as keenly in the United States marine as in other navies. In Gunboat No. 7 the following plan has been adopted. About two-thirds of the boiler power is obtained from water-tube boilers, which weigh only one-half as much as cylindrical boilers of equal capacity. The engine is designed for quadruplex working at full power, the steam being taken from the water-tube boilers at 250 pounds pressure. The cylindrical boilers, which make up the remaining third of the whole boiler power, are connected by a reducing valve to the first intermediate receiver. At reduced power the large low-pressure cylinders are disconnected, and the remaining cylinders worked as a triple-expansion engine, with steam pressure at 160 pounds per spuare inch, this steam being furnished by the cylindrical boilers. In the matter of forced draft Mr. Melville prefers to use a closed ash-pit rather than a closed stoke-hold, where this can be conveniently done, which is seldom the case in a war-ship, where a thorough ventilation of the stoke-hold is essential to prevent the atmosphere becoming impure. In the case of the Brooklyn and the Iowa Mr. Melville wished to get the requisite draft by using funnels 100 feet high, which he claims have several advantages over fan-draft. Within recent years the weights of both engine and boilers, per indicated horse-power, have been substantially reduced; in the latter case by the adoption of coil boilers, and in the former by using higher piston-speeds, and by substituting steel for the wrought and cast iron formerly used. By still further increasing the speed, and possibly by using nickel steel, Mr. Melville thinks that the weight of the engines may be still more diminished in the course of the next few years.

## INSPECTING THE BOTTOM OF THE SEA.

It is a curious circumstance that the further the eye is removed from the surface of the sea, within limits, the better is it able to penetrate the depths of the water. Remembering this fact, certain Russian aeronauts intend to search for the missing ironclad Roosalka by means of a balloon. At first glance this seems a mad proceeding. But aeronauts know well enough that it is often possible to see to the bottom of the ocean from a considerable height, although nothing can be seen from the level of the water. Moret and Dufoure, who made an ascent from Cherbourg in August of 1876, and who were driven seaward, found, when a height of 1,700 metres had been attained, that they could see the bottom of the English channel and everything lying on it. Those addicted to climbing mountain eminences must have had similar experiences. Thus, the bottom of the Mediterranean can be seen from the top of the Gibraltar rock. It is quite likely, therefore, that the Russian balloonists may succeed in discovering the wreck of the Roosalka by the method they propose.—*The Mariner, London.*

## NOTES.

THE Bucyrus Steam Shovel & Dredge Co. report business satisfactory both in volume and character and state that they are running their large works at South Milwaukee, Wis., full time with full force on orders. They have lately received orders for shovels from the Messrs. McArthur Bros.' Co., duplicating their previous orders for the largest and most powerful steam shovel ever built in this country or abroad, from E. D. Smith & Co., Wilson & Jackson and others. The prospects with the company for an excellent fall and winter business are very bright.

MRS. DAGLESH, care of R. Finlay, No. 233 Shields road, Newcastle-on-Tyne, England, writes *Seaboard* for information concerning her son, Hugh Daglesh, or Hugh Dalgleesh, "supposed to be a captain sailing in some of the lake vessels," stating that he "left Monkwearmouth, Sunderland, in 1868, and a few years after was part owner of a vessel which traded from Wallesburg, Ont., to Chicago. The last place he was heard from was Miniosta, in Michigan. His parents are anxious to find out his whereabouts and will pay any expense of advertising." *Seaboard* gladly publishes the request free of charge and hopes that its example may be followed by papers along the chain of lakes. The last report of the United States inspectors of steam vessels (1894) does not include the name of Capt. Dagleeh in any lake list.

A breezy writer on a Detroit paper, which we would be pleased to credit if the clipping permitted us to decipher where it is from, has the following to say under the caption of "Those Summer Passengers": The average master of the big lake steamers, especially those in the ore trade, looks forward to the summer season with mixed feelings of pleasure because he will have no storms or ice to encounter, and of abhorrence because he will be swamped with the owners' friends and friends of the owners' friends. Of course, there will be a number of ladies on the different trips, and they must be given the best on the boat, which includes the captain's own stateroom and its contents, and extra fine rations must be served at table, and countless idiotic questions, prompted by a desire to be engaging more than any thing else, must be answered, and at every turn he must bear the burden of responsibility if he wishes to be well-spoken of to his owners. Besides all the work required to be polite and accommodating to the visiting men and women he must stand his watch and make his time. It must be exasperating to the master who, worn out with a long watch, goes to his room only to find it occupied by a party of card players, while a lovely young miss in pink shirt and blue skirt lies on her back in his most comfortable berth reading a sloppy novel. In this case he goes down in the firehold and fans himself with the blower.

WILLIAM L. BROWN, President.
WALTER F. COBB, Vice President and Treasurer.
W. I. BABCOCK, Manager.
O. R. SINCLAIR, Secretary and Asst. Treas.

# Chicago Ship Building Company,

## STEEL STEAM-SHIP BUILDERS.

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## Mannheim Insurance Company,

OF MANNHEIM, GERMANY.

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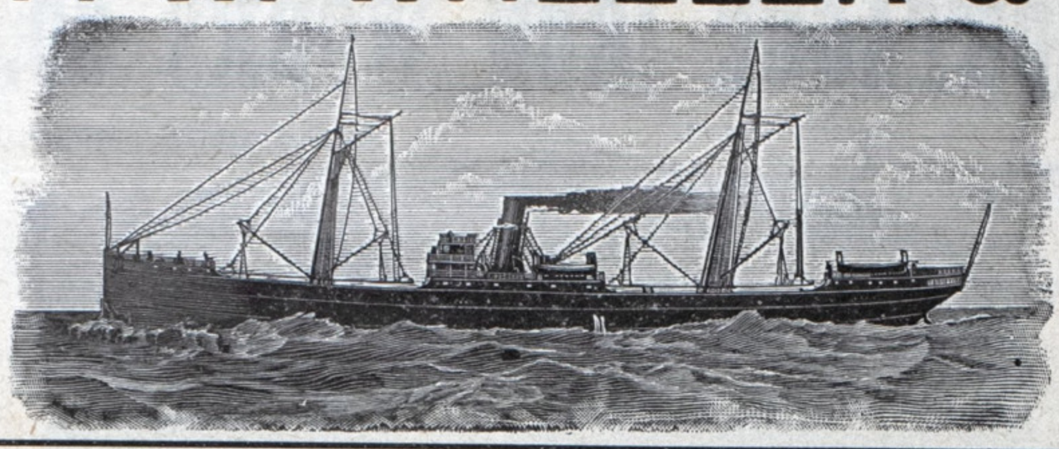
# F. W. WHEELER & COMPANY.,



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IRON, STEEL AND WOODEN SHIPS,

FOR LAKE OR OCEAN SERVICE.

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INCORPORATED 1794.

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JOHN H. ATWOOD, Assistant Secretary.

## Lake Marine Department.

GEORGE L. McCURDY, Manager,
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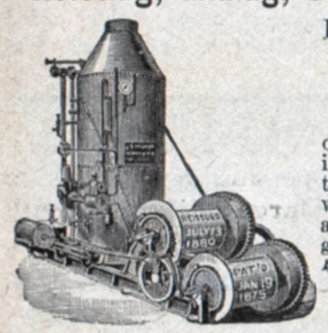

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Fourth & Wakouta Sts., St. Paul, Minn.
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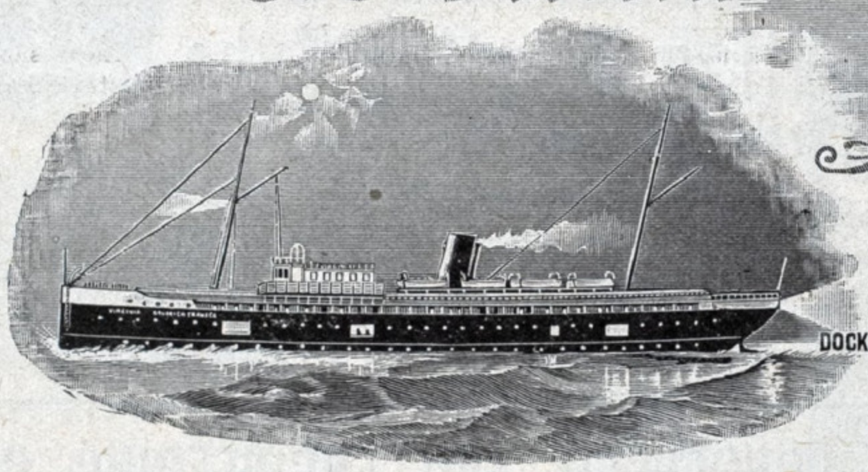

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South Milwaukee, Wis.

## STEAM SHOVELS AND DREDGES

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C. E. BURKE. THOS. FITZPATRICK. THOS. H. WHITE. MARTYN BONNELL

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BABY & DALE, St. Clair, Mich.
N. C. ALTEN, Lorain, O.
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$4.00 to Toronto on the Niagara Falls excursion via the Nickel Plate Road Sept. 12th. Remember Canada's Great Fair is then in progress. 146

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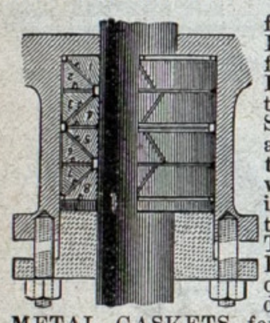
## Katzenstein Self-Acting Metal Packing



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Fore and Aft Compound Marine Engines.

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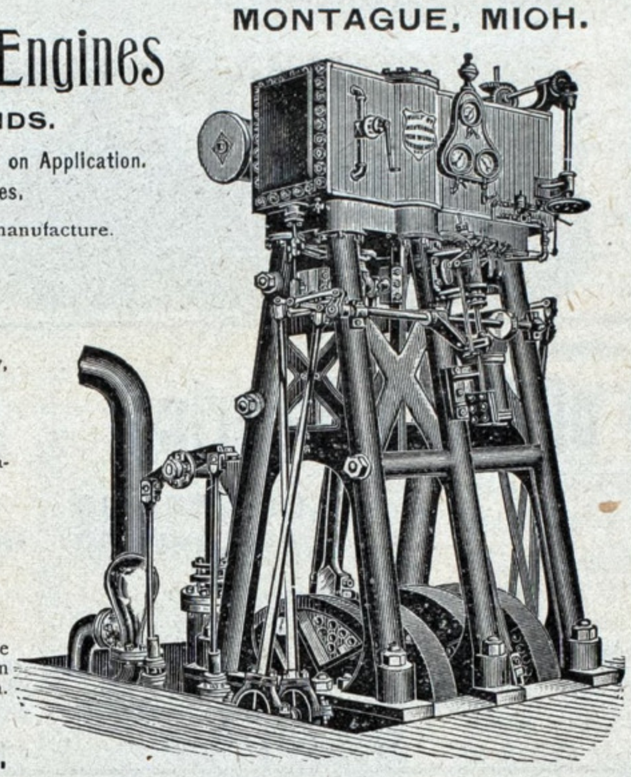
Passenger and Frieght Steamer, Bon Voyage, Saugatuck, 16 and 30x26.
Tug, Hunter, Chicago, 15 and 28x22.
Tug, Edward G. Crosby, Muskegon, 16 and 30x24.
Oval Agitator, Chicago, 14 and 28x20.
Tug, Peter Coates, Sault Ste Marie, 10 and 20x16.
Luella H. Worthington, Cedar River, 19 and 36x30.
Passenger Steamer, E. G. Maxwell, Pentwate 14 and 28x20.



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*ILLUSTRATED CATALOGUE SENT ON APPLICATION.*

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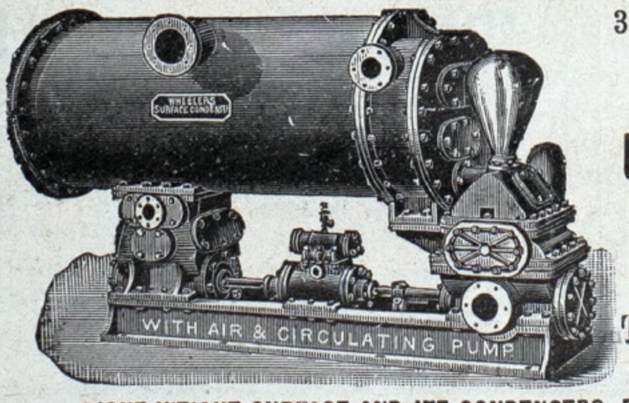


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WITH PATENT SCREW GLANDS.

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With Patent Waterproof Packing.

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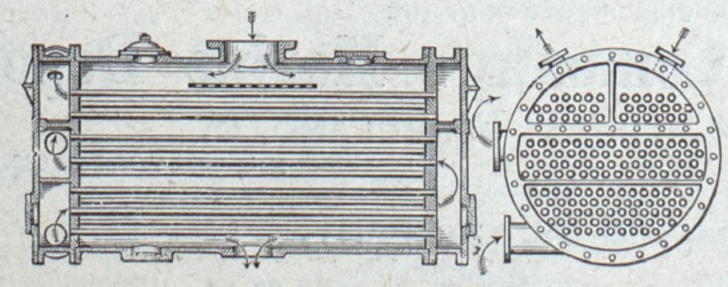
# Standard Condenser Co.,



SOLE BUILDERS

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**$2.00 or $1.00**

Pays for one year or six months respectively and THE MARINE RECORD gives you all the news of the lakes. Address SMITH & SWAINSON, Leader Building, Cleveland, O.

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leaves Cleveland via the Nickel Plate Road 5:30 a. m., September 12th for Niagara Falls, $3.00 for the round trip. Toronto $1.00 extra. At 224 Bank street, 534 Pearl street or Depots you may purchase tickets. 148

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Improved Bolt Helmet.

ESTABLISHED, 1844.

**A. SCHRADER & SON,**

Manufacturers of

Submarine Armor

AND

Diving Apparatus.

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$3.00 to Niagara Falls, $4 00 to Toronto via the Nickel Plate Road September 12th. City Ticket offices 224 Bank street, 534 Pearl street and Depots. 145

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J. G. SCHRIEVER, Traffic Manager.

A. C. HUTCHINSON, Pres't. New Orleans.

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**PROPOSALS.**

U. S. ENGINEER OFFICE, 2258 Wabash Ave., Chicago, Ill., September 5th, 1894. Sealed proposals in triplicate will be received here up to noon, central time, September 25th, 1894, and then publicly opened, for the following river and harbor work. Chicago Harbor: Exterior Breakwater, rebuilding and repair of superstructure. Calumet Harbor: Rebuilding superstructure of piers. Calumet River: Dredging above and below the Forks. All information furnished on application. W. L. MARSHALL, Capt. Engineers. 36-38

U. S. ENGINEER OFFICE, 34 West Congress street, Detroit, Mich., August 23, 1894. Sealed proposals for furnishing all labor, materials, and appliances, and removing a shoal of bed rock and other material from Sec. 8, Ship Channel between Chicago, Duluth and Buffalo, will be received here until 2 p. m., standard time, September 22, 1894, and then publicly opened. All information furnished on application. O. M. POE, Col. Corps of Engineers. 34-37

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# BASSETT, PRESLEY & TRAIN,

# Iron and Steel Warehouses.

SHIP PLATES, SHIP SPIKES, ANGLES, BEAMS, CHANNEL AND TEE IRON, BOILER TUBES, BOILER, TANK AND COOPER RIVETS, STEEL BOILER PLATES, BAR, BRIDGE AND CAR IRON, HOOPS, BANDS AND SHEET IRON.

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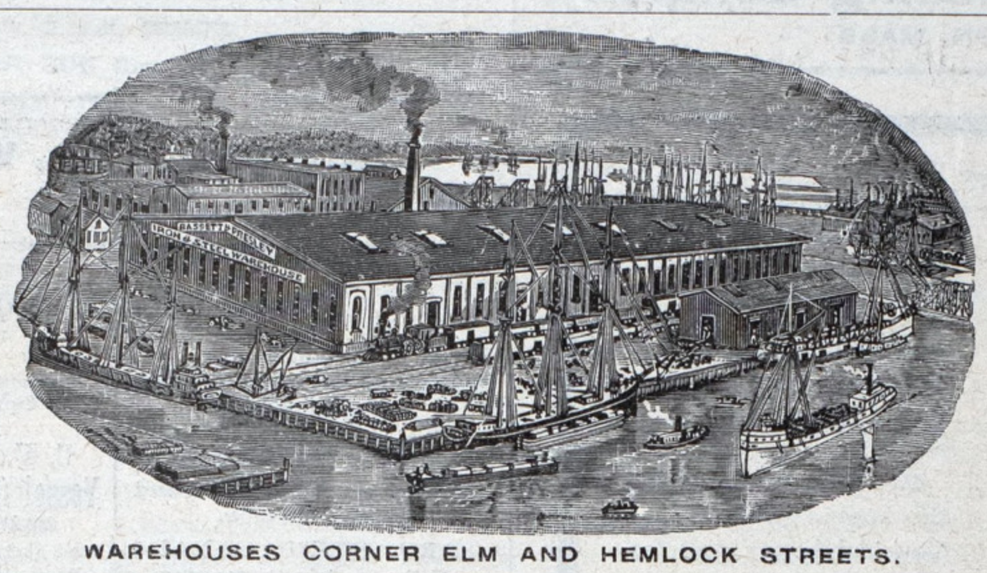

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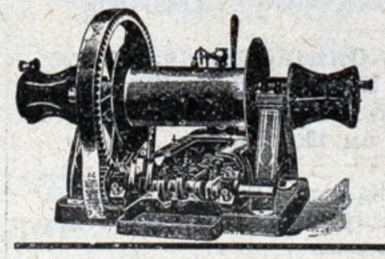

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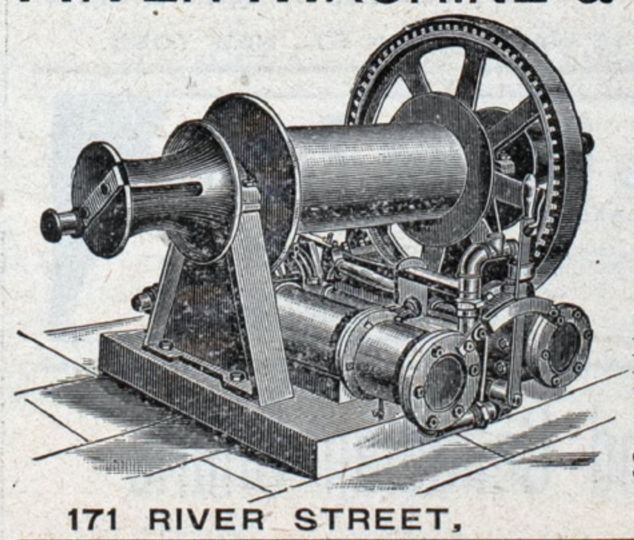

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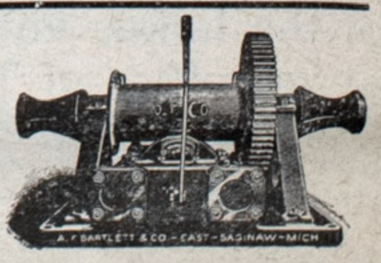


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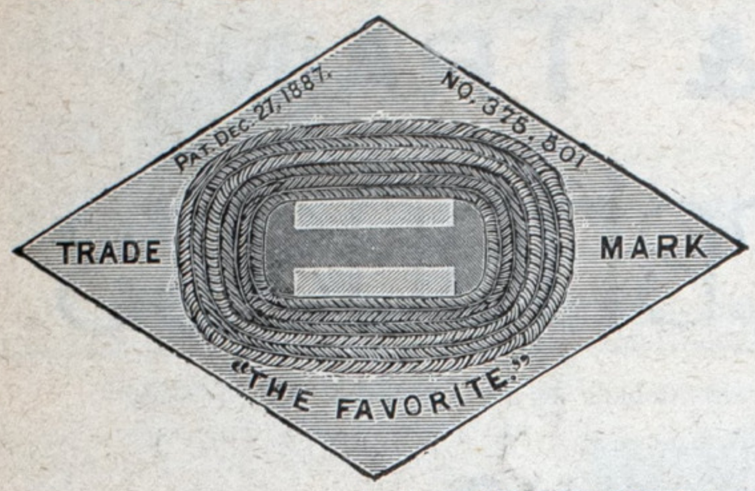


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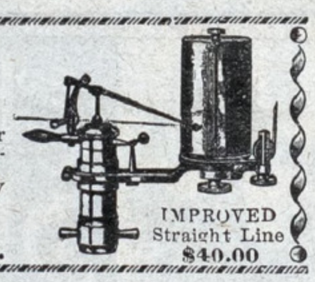

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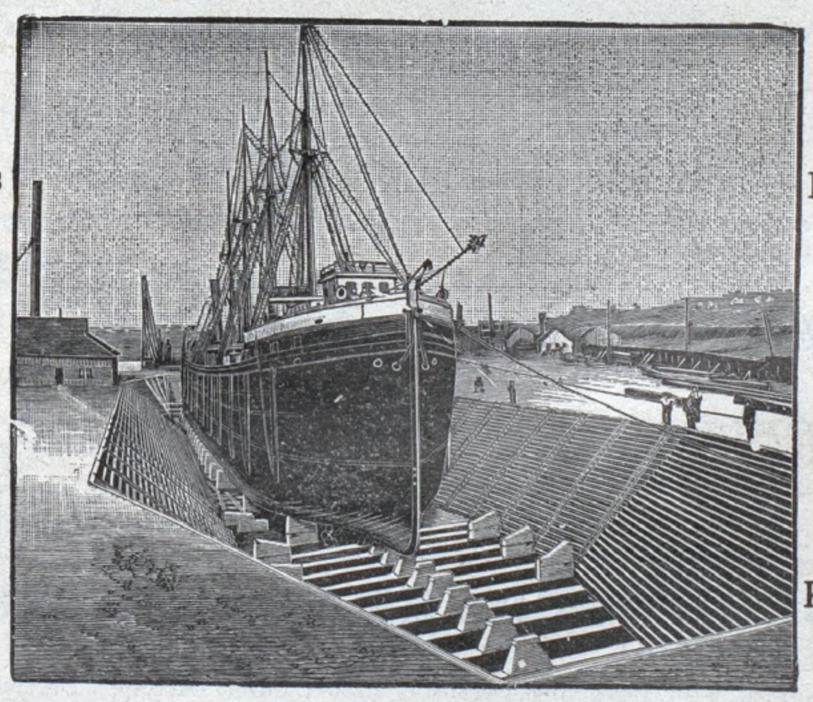

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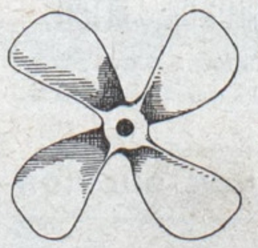

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